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ABSTRACT

Including sections on research, programs, and professional problems and issues, this yearbook contains presentations given at the 1978 and 1979 meetings of the North Central Reading Association. Papers include: "The Effects of Anxiety on Reading Comprehension" (David Wark and others); "Some Effects of Anxiety on University Students" (J. Michael Bennett and David M. Wark); "Personality Patterns of Good and Poor Readers Using Cattell's 16PF" (Walter E. Lockhart and Earl L. Menary); "Effects of a Reading and Study Skills Program on Academic Performance and Retention in a Technical College" (Gretchen Starks and Anthony Kuznik); "Comparing Visual/Tactile Performance and Reading Achievement" (Bruce A. Lloyd); "Transcendental Meditation and College Grades" (Carmen J. Carsello and James W. Creaser); "A Self-Managed Reading Improvement Program" (George Ruppel); "Peer Education at a University: The GUTS/HASH Model of Tutorial Assistance" (Harry M. Behrman); "Self-Image: An Important Concept for Study Skills Professionals" (Mark E. Thompson); "Frameworks for Examining Comprehension and Discourse: An Overview" (Robert F. Carey and Sharon L. Smith); "Needed: Systematic Evaluation of College Remedial Reading Programs" (James M. Deem); and an appendix "A Topical Bibliography for Study Skills Teachers" (Joseph A. Fisher). (RS)

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College and Adult Reading

Xth

NCRA YEARBOOK

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1980

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COLLEGE and ADULT READING

VOLUME X

North Central Reading Association

1980 Yearbook

Edited by

JOSEPH A. FISHER
Drake University

1980

CS010040

PREFACE

This volume contains presentations given at two meetings of the North Central Reading Association. The first held at Notre Dame University in Southbend, Indiana, October 21-22, 1978, hosted by R.D. Willemin and Boyd Jackson; and the second held at Western Michigan University, October 26-27, 1979, in the civic center of Kalamazoo, Michigan and hosted by Bruce Lloyd. The board of directors and membership extend their sincere appreciation to all of these people and their institutions for their excellent cooperation and support.

As Volume X of the proceedings of the organization are being prepared for publication, news of the terrible tornado that struck Kalamazoo is still fresh in our minds. Memories of this meeting will always be associated with this tragedy and make us appreciate a little more the experiences we had there. We take consolation in the knowledge that the courage and determination which so characterize our friends and colleagues at Western Michigan are typical of the whole city and bode well for an inevitable resurrection.

A special word of thanks is due Dr. Boyd B. Jackson of the University of Illinois at Champaign for his cooperation with Dr. Lloyd and his local committee in setting up the Kalamazoo program.

No conference can be successful without the enthusiastic and capable

participation of all in attendance. We are proud to find that the warm collegiality and friendship of the membership continues to be a dominant factor of our yearly gatherings.

Since our last meeting, Dr. Merrill M. May of Purdue has retired from our ranks but he will always be with us in spirit and we who know him as friend and colleague acknowledge a debt of appreciation and gratitude. We wish him happiness and health and hope he will honor us with an occasional visit.

The editor wishes to acknowledge the able and patient cooperation of Mrs. Margaret Foglesong who had the dubious honor of preparing this manuscript for publication, and expresses special thanks to the Office of Student Development Services of Drake University for granting both the editor and Mrs. Foglesong time and facilities to complete this project.

Joseph A. Fisher
Drake University

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Tenth NCRA Yearbook

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The Effects of Anxiety on Reading Comprehension

David Wark
J. Michael Bennett
Julie Wolinski
University of Minnesota

ABSTRACT

In this project the authors explore the effects of anxiety on reading comprehension in a series of two experiments. Experiment One investigates anxiety in a How to Study Class principally by comparing scores on Sarason's Test Anxiety Scale with Part III, Comprehension, of the McGraw Hill Basic Skills System reading test. The second experiment compared performance on the Nelson Denny Reading Test for High School and College and scores on the Sarason Anxiety Scale. An analysis of performance by item type revealed that students in Experiment One suffered more on items requiring them to piece together information from more than one place. Students in Experiment Two did not show this same anxiety effect. However, since students in the second experiment were less anxious and worked with a totally different set of items, it is not clear which variables may account for the differences between the two experiments.

Test anxiety, as a scientific concept, is approximately twenty years old (Sarason, 1972). The most common example of test anxiety is the student who consistently earns lower scores on classroom exams than one would expect, knowing that student's tested ability. Another frequent clinical example is the student who reports forgetting well-studied material until after turning in the exam. The truly test anxious student reports a rush of recall, after it's too late. A third, and somewhat less frequent example is the normally fluent reader who, in the middle

of a paragraph, reports failing to comprehend familiar material. All these phenomena--lower than expected performance, a sudden loss and then return of memory under test taking situations, and unaccountable gaps in reading comprehension--are examples of test anxiety.

There are several studies of test anxiety and its impact on college achievement. Gaudry and Spielberger (1971) reported the relationship between anxiety, grades and college dropouts at Duke University. They found that for low and medium aptitude students, as measured by the College Boards, there was a negative correlation with test anxiety and grades. Only the high aptitude students were able to perform well in spite of high anxiety. And highly anxious students were more likely to drop out of college for academic failure than were low anxiety students, even when ability was held constant. A most illuminating finding, by Sarason (1972), is that under non-threatening or non-testlike conditions, high anxious students do about as well as low anxious students.

There have been some studies of test anxiety and reading. A recent ERIC review by Wildemuth (1977) includes several studies showing a negative relationship between test anxiety and various reading measures in children. Holmes (1972) reports a negative correlation with vocabulary for fourth graders. Johnson and Hummel (1971) report similar negative correlation with vocabulary and paragraph comprehension on the Stanford Achievement for fifth graders. Kestenbalm and Weiner (1970) report a negative correlation with reading performance for seventh and eighth

grade readers. Lombardi (1974) reports, for seventh graders, another negative correlation with reading, at all levels of measured intelligence. Proger (1973) reports for sixth graders that high anxious students profit from abundant advanced organizers. Low anxious students, on the other hand, seem not to need these kinds of aids. Interestingly, there were no reports in the ERIC review of any studies of the relationship between test anxiety and reading in college students. We now report two such studies.

Experiment I

Test Anxiety in a How to Study Class

Subjects in the first study were 75 students in How to Study classes taught at the University of Minnesota. As part of the introductory testing, they filled out the 16-item Test Anxiety Scale (Sarason, 1958). The instrument is developed from the notion that anxiety is a result of negative evaluation. A child being so evaluated by its parents becomes hostile, guilty and eventually anxious. To the extent that a test situation involves the threat of negative evaluation, some of those same emotions may be generated. The test anxious college student pays more attention to the internal feelings of anxiety than to the test item. Consequently, performance is impaired. Sample items from the test are as follows:

1. I wish examinations did not bother me so much.
2. Thoughts of doing poorly interfere with my performance on tests.

3. During tests, I find myself thinking of the consequences of failing.

Scores range from zero to 16. The distribution of scores for the How to Study class are presented in Figure 1. The top and bottom 33% of that distribution, cutting at 6.5 and 11.5, were used to define high and low anxiety within the class.

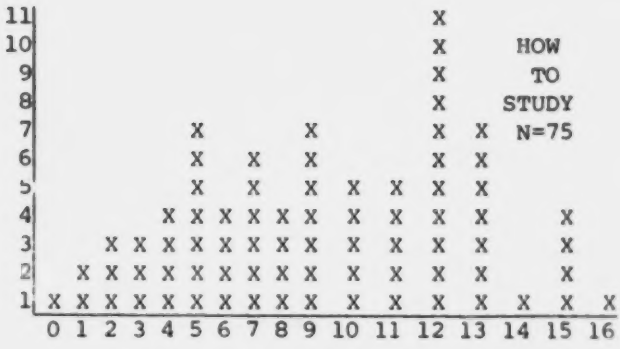
The reading test used in this research was the McGraw-Hill Basic Skills System Reading Test, Form A. Part III, the Comprehension section, was used as the measure of reading comprehension. The test was given under standard conditions, which include a very generous 40 minutes time limit for the 30 comprehension questions. All students finished all items. The scores were examined to find any relationship between levels of test anxiety and reading comprehension.

The reading and anxiety scores were evaluated using a two-way analysis of variance, presented in Table I. The measured variables were anxiety and comprehension. Both main effects were significant, $P < .001$. Low anxious students showed higher comprehension (mean = 23.5) than high anxious students (mean = 18.2).

Another way to interpret the difference between high and low anxiety is to convert the comprehension means to percentiles for freshmen at four-year colleges. The low anxious students fell at the 79 percentile; the high anxious students at the 18th. (In most college-level reading improvement programs in the country, the highly anxious students would

FIGURE I

TEST ANXIETY SCALE SCORES FOR TWO STUDENT GROUPS



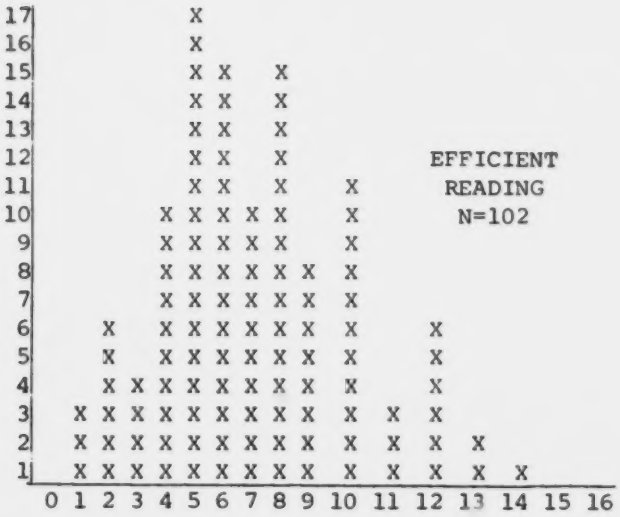


TABLE I

ANALYSIS OF VARIANCE OF TEST ANXIETY AND READING COMPREHENSION

ANXIETY

COMPREHENSION MC GRAW HILL	HO	MED	HI	
LO	19	16.2	14.0	16.57
MED	24.8	19.75	17.66	20.45
HI	28.14	25.22	21.77	24.80
$\bar{X}$	23.5	20	18.2	
%'le	79		34	
r=	= .45		N = 75	

ANOVA

SOURCE	df	S S	M S	F
ANXIETY	2	359.00	179.5	50.70 *
COMPREHENSION	2	862.135	431.08	121.77 *
INTERACTION	4	113.370	28.34	8.005*
ERROR	66	233.926	3.54	

*P < .01

have been categorized as a remedial treatment group.) The interaction between anxiety and comprehension was significant at $P < .001$. Clearly, a student's level of anxiety is related to performance on the McGraw-Hill Reading Test.

Experiment II

Test Anxiety in an Efficient Reading Class

In an effort to expand our sphere of test anxiety research, we tried an experiment with another group of University of Minnesota students. For this treatment, we used the Nelson-Denny Reading Test for High School and College, Form C. The Nelson-Denny is a very well-known and frequently used test for college students and adults. The Nelson-Denny is quite different from the McGraw-Hill and many other tests in that it is "speeded" --that is, the time provided for completing the test is quite short. The primary reason for the short testing time is to allow administration of the complete test during one normal class period. But it also seems to create an interesting situation insofar as test anxiety is concerned: Would speededness increase anxiety effects?

First, we administered the Sarason Anxiety Scale to 102 students registered in three sections of the University of Minnesota Efficient Reading course. Their test anxiety scores are reported in Figure 1. This group was clearly less anxious than was the How to Study class group reported in Figure 1. The anxiety scores were grouped into High, Medium, and

Low Anxiety categories, cutting at 4.5 and 10.5.

The Nelson-Denny Reading Test was administered under standard conditions. The comprehension section of the test allows the student fifteen minutes to read eight separate passages and answer a total of 36 questions. None of the students finished the test. The reading scores were tested by an analysis of variance which found no significant differences between the three anxiety groups. Because of unproportional differences in group sizes, the data could not be tested for an interaction between comprehension and anxiety. Data are reported in the top row of Table 2.

In order to examine the speededness/anxiety relationship more carefully, we administered the Nelson-Denny to a second group of 19 students. They were older than average, registered in evening school, and generally more anxious than even the How to Study students. In this instance, they were given the test-anxiety questionnaire and then the Nelson-Denny under "power" conditions--that is, with no time limits. Under such circumstances, there was some relationship between anxiety scores and reading scores. The product-moment correlation between anxiety and performance was $r = -.45$. While the differences between the three groups (High, Medium and Low Anxiety) did not reach the conventional level of statistical significance, the probability was sufficiently small ($P < .09$) to suggest that with a larger group under higher anxiety and power conditions, even the Nelson-Denny Reading Test is sensitive to

TABLE 2

	HI ANX.	MEDIUM ANX.	LO ANX.
		SPEED CONDITION	
T.A.S.	0 - 4	5 - 9	10+
N	21	62	19
M	41.23	40.70	37.26
			P =.43

		POWER CONDITION	
T.A.S.	0 - 5	6 - 9	10+
N	6	5	8
M	56.00	53.60	46.50
			P= .09
			r= -.45

READING COMPREHENSION SCORES FOR THREE LEVELS OF TEST ANXIETY UNDER TWO TESTING CONDITIONS.

the effects of test anxiety. The comparison between the speed and power groups is presented in the bottom line of Table 2.

More research into this matter is warranted, however, because the Nelson-Denny is minimally sensitive to anxiety when administered under standard conditions. Perhaps the speededness of the test tends to put everyone under the same threat and thus masks the effects of test anxiety. Alternatively, the effects may have been attenuated in Experiment II because the students were less anxious than those in Experiment I.

We are now left with the intriguing question: By what mechanism does anxiety affect reading comprehension? Some suggestions for an answer may be found in the research literature on anxiety. One theoretical position that may be relevant is the cue utilization hypothesis (Muller, 1976). The general notion is that anxious or aroused subjects use fewer of the available cues in coding stimuli for memory. The type of coding negatively affects recall. Some of the relevant experimental work involved incidental learning (McLaughlin, 1965). For example, if a student's explicit task is to underline all the nouns on several pages of text, his score on an unexpected recall test of those nouns is considered a measure of incidental learning. High anxious subjects tend to show less incidental learning, suggesting they attend to the features of only one task at a time, or that their memory may be impaired by anxiety.

Muller (1976) reports other studies

of the cognitive functioning of high anxiety subjects. In one experiment, he presented a series of words which were to be read, memorized and then repeated back. The word list was designed so that all the items had a type of organization built in. One of the lists was designed to have high verbal association between words scattered throughout the list (black-white, king-queen, high-low). The other list was designed to contain words that were related by category (six metals, six animals, six colors). The prediction was that highly anxious students would pay attention to the words, and not the associations or categories. If so, when tested on recall, they would show weak evidence of clustering, reproducing words that were learned close together rather than relating words scattered in the list. That's what Muller found, weaker clustering by anxious students. In another experiment, he also found the same clustering effect for words that had no built-in associations. The less anxious students tended to create their own clusters and recall certain words together, regardless of where they were placed in the original list.

How might we translate these findings on recall and clustering under anxiety to comprehension testing under anxiety? The cue utilization hypothesis is that high anxious students may get part of a message, but miss some of the important details and associations. Consequently, they may miss some of the relationships between ideas. If a comprehension question called for a particular fact, found in a particular place in the reading text, there should be relatively little difference

between high and low anxious students. Students with different levels of anxiety should not be discriminated by that type of item. On the other hand, there may be some questions that require inference and judgment. They would be answered by material that would be found in several places in the paragraph. The reader would have to keep the relevant facts in mind, cluster them, see their associations, and then answer a question. These types of questions, which are answered based on material from various places in the paragraph, might discriminate between high and low anxious students.

These derivations were empirically tested. Questions from the McGraw-Hill test were divided into two types, Type I in which the answer was clearly located in only one place, (Items 51, 53, 55, 57, 61, 62, 63, 64, 65, 74, 77) and Type 2 in which the material needed for the answer appeared in more than one place (Items 54, 56, 58, 59, 66, 67, 69, 71, 72, 73, 76, 78, 79, 80).

The students in the study skills class were categorized into the top and bottom 27%. Then the scores for these two groups of students were computed separately for Type 1 and Type 2 items.

For Type 1, where we predicted no difference for anxiety, the difference was M=3.27, in favor of the low anxiety students. In Type 2, where we expected a greater difference, we found it. The difference was M=4.66, again in favor of low anxiety as we would have expected. The overall difference between the differences, D=1.39, has probability of .058;

very, very close to conventional levels of statistical significance.

DISCUSSION

Test anxiety has been an area of professional concern for two decades. The earliest theory was oriented more toward quasi-psychoanalytical concepts. Experience with punishing and evaluating parents was thought to affect a student's level of anxiety. Testing or classroom procedures that reactivated that emotional learning was considered the source of test performance decriments at the college level, when the test was used for evaluation. More recent research by Wine (1971) has turned investigator's concern from prior history to current performance. What the student attends to while testing is considered more critical than prior parental relations in evaluating test performance. Using that interpretation, Wine has taught students how to look at and analyze test items. Under her regime, anxious students tend to improve their test taking. Meuller's work, on the cue-use hypothesis, is clearly aligned with an attention theory.

The high anxious students in Experiment 1 showed significantly lower reading comprehension. Analysis of their performance by item types suggested that they suffered more on those items requiring that they pull together information from two or more places in the paragraph. They were also operating without any speed constraints. Everyone of them finished all the items. That suggests that they had all the time they wanted to go back and re-evaluate their work. It's worth noting that under a speeded condition, the

students in Experiment 2 did not show anxiety effects. However, there were two confounding differences between the experiments. In the second experiment, the students were less anxious, and were working with a totally different set of items. It is not clear which, if any, of these variables account for the differences between Experiments 1 and 2. Obviously, more work is called for to explicate the theory of test anxiety, and find out more about how the problem affects reading comprehension.

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Some Effects of Anxiety On University Students

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ABSTRACT

In order to study the effects of anxiety on reading comprehension, the Nelson-Denny (Form C) was administered to a large group of (day) Efficient Reading students and Nelson-Denny (Form D) to a smaller group of (extension) students. Both groups completed the Test Anxiety Scale (Sarason) as well. In addition to the standard test administration, the extension students were asked to work 15 minutes longer and finish the Nelson-Denny test. The results of an analysis of the data generated three hypotheses which the authors suggest merit further study.

Test anxiety has been demonstrated to be a potent negative influence on the academic performance of college and university students, especially as measured by standard administration of nationally normed reading comprehension tests (Wark, Bennett, Wolanski, 1980; Bennett, Wark, 1979). The percentage of students reporting high anxiety on the 16 point Test Anxiety Scale (Sarason, 1958) is normally approximately 20 percent in the daytime sections of the Efficient Reading classes conducted each quarter at the authors' university. The level of performance on reading comprehension usually closely parallels the anxiety level of the three groups classified as High Anxiety (HA), Medium Anxiety (MA), and Low Anxiety (LA). The comprehension difference between groups is frequently from five to twenty percentile points, with the result that

High Anxious students score from 10 to 40 points lower on comprehension subtests than Low Anxious students.

In order to examine these phenomena (among other things) more closely the writers administered the Nelson-Denny, Form C to a large group of (day) Efficient Reading students, and the Nelson-Denny, Form B to a smaller group of (extension) Efficient Reading students. These students completed the Test Anxiety Scale, as well. However, in addition to the standard administration of the tests, the evening students were asked to keep working for an additional 15 minutes and finish the Nelson-Denny Reading Test--usually a highly-speeded assessment.

Several interesting facts were disclosed:

1. The range of comprehension performance was as great for the smaller evening class as it was for the combined day sections--from the low 80's to the first percentiles.

2. Slightly less than 20 percent of the day students were highly anxious compared to more than 40 percent of the evening students.

3. The differences between High, Medium, and Low Anxiety groups were as expected, wherein the anxiety level predicted the performance level--i.e. High Anxiety equaled low relative reading performance.

4. When the test performances under "power" conditions were analyzed, we found that the difference between Low and Medium Anxiety students was about the same as

under "speed" conditions. However, the High Anxiety people of both groups were almost twice as far below the Medium groups as was anticipated.

Table 1

	HA	MA	LA
Speed	17%ile	35%ile	52%ile
Power	25%ile	48%ile	63%ile

Mean Comprehension of several groups of Efficient Reading classes.

More research into test anxiety will be conducted by the authors. At least three hypotheses suggested by the present study and by previous trends will be examined.

First hypothesis: Extension students are the same as regular college students in some respects, such as range of comprehension score; they are remarkably different in others, such as level of anxiety.

Second hypothesis: The "speededness" of some standardized high school and college reading tests, such as the Nelson-Denny, acts as a "leveling agent" in diminishing the impact of test anxiety on test scores.

Third hypothesis: Test anxiety is a valuable and accurate predictor of percentile ranking (scores) on standardized reading tests. It may also be a very important determinant.

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Personality Patterns of Good and Poor Readers Using Cattell's 16PF

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ABSTRACT

The authors address the problem of relating personality variables to reading achievement. Theyattempt to remedy the lack of functional application of personality research to practice in reading instruction by using a personality test that is easy to administer and interpret (Cattell's 16 PF, Form A). They report differences in personality traits by sex and between readers of high and low achievement as measured by the Nelson-Denny Reading Test, Form D. A comparison of the findings of this study and those of three other investigations is provided to give the presentation added dimension.

Purpose

Prior research in the area of personality and reading achievement suggest that personality patterns do indeed effect reading achievement. But due to the variety and complexity of the instruments used to assess these differences, very little practical spinoff has accrued to the classroom reading person in terms of

strategies to cope with these personality differences. Therefore, we feel that a personality test is needed that is both easy to administer and interpret and one that has readability level low enough to be applicable at the level for which it is intended. For the college population, Cattell's 16 PF Form A seems to fit these requirements. It has about a seventh grade reading level, it only requires about 55 minutes for administration and results could be displayed visually on a graph which could aid interpretation.

It was the purpose of this pilot study to determine whether Cattell's 16 PF could identify differences in personality traits between readers of high and low achievement as measured by the Nelson-Denny Reading Test Form D. Once the differences were tabulated we could compare our finding with the findings reported in the literature and attempt to evaluate the 16 PF in light of those comparisons.

Methods

The N-D reading test was administered to students in logic and psychology classes (N-150); from this group the top thirteen students in reading ability were to be selected for administration of the 16 PF. A comparison would then be made between the personality profile of these students and thirteen students enrolled in a study skills class. During the selection from the academic classes we identified nine students whose reading ability approximated that of the study skills group. We decided to include this group of students in the study and so we selected an additional nine students from

the top readers for a total sample size of forty-four. Unintentionally our sample consisted of twenty-two female subjects and twenty-two male subjects. We designated our groups in the following manner:

Vocab	Comp	Total		M	F
14.6	14.1	14.2	Good Readers Gen. Pop. N =	10	11
10.1	8.3	9.0	Poor Readers Gen. Pop. N =	4	5
10.3	10.1	10.2	Study Skills Group N =	8	6

Comparisons were made by rotating the groups and looking for differences that appeared to be significant. Rank correlations were computed between the personality factors and reading ability by sex. Tables of these comparisons are presented at the end of the paper.

Findings

Comparison of the four group profiles from tables 7 and 8.

In our tables of profiles we divide our sample into four groups on the basis of reading scores on the Nelson-Denny and on the basis of sex. Hence we have Group I High Scoring Males, Group II High Scoring Females, Group III Low Scoring Males, and Group IV Low Scoring Females.

In listing group characteristics we found that Group I high scoring males, lead both on the B scale (intelligence) and on independence (Q2). These people show up as bright individuals who set their own goals and make decisions without a great deal of reference to the attitudes of other people. They show some anxiety

of the situational frustration variety but are not excessively guilt prone.

They are not a very outgoing group but are stable in mood and rather reserved. This group does not seem to be very concerned, at least about conventional social standards and may have a problem with direction in life and exactitude on tasks (low G and Q3). They are also somewhat shy and sensitive to threat (H-). They are also somewhat emotionally unstable (C-).

In Group II (high scoring women) we found that they were nearly as independent as their male counterparts. They appear to be freethinking and an innovative group which seeks novelty. They are notably high in inner hostility and would tend to be jealous and suspicious. They are somewhat below the general population. They are also relatively low on G which would indicate a somewhat non-conscientious person at least by conventional standards.

Group III (low scoring males) were above average on both major measures of anxiety (O and Q4). They also tend to be shy, threat sensitive, and reserved.

Group IV (low scoring females). The women in this group are the most anxious group of all with high stens on guilt proneness (O) and situational frustration (Q4). Because of their low C score (ego strength or emotional stability) combined with these high anxiety levels, the group as a whole follows the typical neurotic profile. Nevertheless, they are an outgoing and assertive group of women (A+ and E+). Their minds are fixed on the present situation (M-) and is not prone

to fantasy or to absorbtion in its own inner creations.

Inter-Group Comparisons

Comparing the two high scoring groups (I and II) we find that they are alike in independence (Q2) each scoring significantly above their lower counterparts. The men score higher on Cattell's B scale for intelligence and are less hostile (L-) than the women and less original (Q1-). They are less outgoing (A-), less emotionally stable (C-) than the women and more sensitive to threat or shy than the women (H-).

Comparing the two low groups (II and IV) we found that both the men and the women were very anxious, with the women scoring a full sten above the men in their respective leagues on (O and Q4). The women are more outgoing and assertive (A+ and E+) than their male companion group. They are more oriented to the external world (M+) than are the men. The men are shyer (H-) but more emotionally stable (C).

In comparing the two upper groups (I and II--men and women) with the two lower groups (III and IV--lower men and women) we find that the only measures which clearly separate the combined upper groups from the combined lower groups are O, G, Q2, Q4. The upper two groups are clearly more independent of their social set than are the lower groups. They are much less guilt prone than the lower groups both of which have high stens on the O scale. None of the four groups are above average in the G scale but the two upper groups are a full sten score under their

lower counterparts. The better readers seem less conscientious and less concerned at least with conventional group standards.

Comparing upper women with lower women (Groups II and IV) we find the upper women to be higher scoring in L, Q1, and Q2. They are more basically hostile (L+), more innovative and novelty seeking (Q1+) and more independent.

The lower women won the gold medal on anxiety scores carrying an 8 sten on both guilt proneness (O) and situational anxiety (Q4). Low scoring women were warm, outgoing, and moodchanging (A+), they were the only group of the four which scored above average on this key indicator of extraversion.

In comparing the two male groups (I and III) we found that the upper males were the only group of the four which scored significantly high scores on Cattell's B scale for intelligence. They reached the 8 sten level while all others remained at the 5 level including the high level women readers. The upper males lead the lowers on independence (Q2). On the A scale both male groups are low but the upper readers score lowest of all four groups meaning that the males tend to be reserved and steady in mood, scoring like introverts on this key measure. Both G and Q3 are lower for the better male readers. Once again these low scores indicate a set of traits pointing to an unconscientious lacadaisical, non-exacting and perhaps dishonest life style. This seems inconsistent with their good academic performance.

Comparison of the Findings in this Study with those of Three other Investigators

In Hake's (1970) study of much younger readers he found poor readers to be more negative in their associations and behavior. He found them to be shy and withdrawn, careless in their school work, emotionally less stable, and more depressed. He found them to be bullies and rebels.

From this description we would expect the low reader to be high on L (negativity and hostility). We would expect them to be low on A (withdrawn) and H (shy), while high on M (inward looking). We would expect them to be low on C (emotional stability). We also expect them to be low on both G and Q3.

Our college sample resembles Hake's group only among women with respect to Q3 where they score a sten below the upper group. Contrary to his findings, our low group is equal to the upper in both the male and female divisions. L, M are higher for the upper women readers, the reverse of Hake's picture, as are G scores.

Among the males the L and M scores are the same for both upper and lower readers, rather than higher among the poorer group. H is also identical rather than lower among poor male readers. A, G, C and Q3 are in reverse of expectations being lower among good readers than among the lower group.

Ragor and Wark (1964) found poor male readers to be high on MMPI scales

4, 7 and 8. They lacked social skills, were likely to have conflicts at home between mothers and siblings, had poor rapport with peers. They were seen as shy and depressed, had vaguer life goals and were less verbal.

Cattell repeatedly warns that 16 PF scales drawn from normal populations cannot be easily translated into the clinical scales of the MMPI. Any attempt to make Cattell's scales such as L or F ismorphic with an MMPI measure is a risky venture indeed. Nevertheless from the Ragor and Wark description of behavior and attitudes we would expect several 16 PF scores to reflect this description.

1. The high MMPI 7 should correlate with C-, O+. and Q4+ on the 16 PF.

2. Low social rapport with peers and family is apt to spring from high L (hostility) and M (inward preoccupation). In addition a low N score indicating social naivete should round out the expectation we have for these socially maladroit males.

3. Vagueness of life goal might be reflected in low Q3.

Apart from an elevated 4 scale on MMPI, the Minnesota women were above average in personality profile. From this we might expect the lower women to be lower on G and Q3 but not over endowed with anxiety.

Our males were like the Minnesota samples expected 16 PF profile only in

that the lower male readers carried more guilt prone anxiety than those in the upper group.

Our males differed from expectation in that both the low and high readers were identical in score on M, L, N and Q4. The men were the opposite of our expectation in Q3 with the top male readers scoring a sten under their low reading counterparts. Their G scores were identical rather than high for the better readers as we would have expected.

Among females every reading is contrary to the picture we derived from the Minnesota study. G is higher among the low reading women--the reverse of our prediction. Q3, while higher among the upper readers, never breaks above a weak 5 sten for either the top of bottom reading group. Meanwhile the low scoring women conform as a group to Cattell's neurotic profile. They are low on C (emotional stability) and very high on both anxiety scores (O and Q4). This is hardly the picture of an above average personality profile.

Brunken and Shen set up three groups of college level readers. Their three groups were: high rate efficient, high rate effective, and low rate ineffective. They found the high rate effective group to be low on abasement and deference. We would expect this to correlate with F+ and O-.

The high rate effective group was high on self-confidence, autonomous, dominant and high on SAT verbal. From this description we would expect them to

be high on E, and Q2, and low on the neurotic indicators C-, O+ and Q4+ pronounced.

Our sample supports Brunken and Shen on Q2 which is uniformly high among both upper reading groups. On the anxiety indicators our lower reader female group is exactly as expected (C-, O+, Q4+) while our low male readers are higher on O. The low men have greater emotional stability and equal situational anxiety (C+ and Q4). In this respect they are contrary to expectation.

We made another detailed comparison within our sample among those who were gathered from the general Schoolcraft population and the study skills people. Raygor and Wark (1964), point out that enrollees in special reading programs may very well differ from those found in the general university population. With this in mind we wanted to learn whether low and high scoring readers in the general population had different profiles from comparable readers in the study skills group.

Our breakdown was as follows:

1. Comparison of good male readers in the general population with men in the study skills class (Table 1).

2. Comparison of good general population women readers with profiles of study skills class women (Table 2).

3. Comparison of good male readers in the general population with poor general population male readers (Table 3).

4. Comparison of good general population

women readers with poor readers in the general Schoolcraft population (Table 4).

5. Comparison of poor general Schoolcraft population readers with those in study skills class (Table 5).
6. Comparison of poor general population women readers with women in study skills class (Table 6).

Our Table 1 comparison shows that good male readers in the general population are more intelligent (B), and have more self-sentiment (Q3) than is the case with the study skills males.

Table 2 indicates that good female readers tend to be more critical and precise (A), more emotionally stable (C), less anxious and more independent than their counterparts in the study skills class.

From the Table 3 comparison, we found that the major differences between the good male readers in the general Schoolcraft population and poor general population males was that the better readers were more intelligent (B), more careful and shy (H-), less tender minded (I-), and more independent (Q2).

The E scores are completely opposite from expectation. Rather than upper groups scoring high on E, both male groups achieved the same E score while the lower women readers scored above their better reading counterparts in E--a complete reverse of expectations.

Table 4 comparison set: Good women

readers in the general Schoolcraft population appear to be more emotionally stable than the general population poor woman readers. They are less surgent (F), more absorbed in their inward ideas (M+), more socially shrewd (N+), and less anxiety prone (O and Q4) than the poor female readers from the general population.

Table 5 indicates that the poor general Schoolcraft population male reader is more happy-go-lucky than the study skills men. He is more group dependent (Q2-) than is his study skills counterpart. He is less exacting and more lax than the men in the study skills class.

In Table 6 the poor woman reader, from the general Schoolcraft population, differs from her sisters in the study skills group in that she is more intelligent (B+) and more cheerful (F+). She is also less conscientious (G-) and more socially naive than the ladies in the study skills class.

We found that there were differences in profile between those who entered into our study skills class and the profile of Schoolcraft students of comparably Nelson-Denny rank who were selected randomly from our general population.

From our poor general population readers of both sexes we get the sketch of a student who is more socially naive and less serious in his or her purpose than the people in the study skills curriculum.

The main differentiating factor between upper level males and those in study skills appears to be that they are simply a more intelligent group of people.

Good women readers contrast with the study skills group in scoring among a set of factors which tend to delineate a stable more independent person than those women in study skills.

Discussion

We regard our pilot study as being successful in that we have demonstrated that Cattell's 16 PF personality test has generated a series of differential profiles which contrast groups of good and poor readers as established by the Nelson-Denny. Moreover it has established a degree of contrast between students among Schoolcraft's general population and those in the study skills class.

The 16 PF is an easily administered and easily scored test through which personality measures can be acquired as a basis for comparison with intelligence scores and reading scores.

Future aims of this pilot study are:

1. To expand the sample and determine whether the relationships we have uncovered through the 16 PF measure are strengthened or weakened by additional data from community colleges.

2. To broaden the study to determine whether the community college population with which we deal generates profiles which are similar to or different other higher education populations.

3. To carry out the above mentioned study of motivation among the sample population to determine the probable basis of low G and Q3 scores in the upper

reading groups. (as reported in tables 7 and 8).

4. We hope soon to complete a study in which we compare the correlations of scores on the WAIS with Cattell's B scale (16PF form A and 16 PF form B) in order to determine how closely the more easily administered B scale compares with the WAIS in measuring the intelligence of our population. This would give us a better idea of how we ought to use the Cattell B scales in measuring our population and how much confidence we ought to place in them.

5. Finally, we want to research all of the significant personality variables which serve to differentiate our groups beginning with the anxiety factors among low scoring females. We want to know whether these high rates of anxiety contribute significantly to lowered reading scores in our population or whether they are the result of reading failure.

If they are the results of reading failure then anxiety measures should decline among anxious students who improve their reading ability through a study skills program. If anxiety factors instead depress reading scores, then out-of-class counseling and therapy should lead to boosts in measures of reading ability and classroom performance on reading tasks.

The same question arises in connection with the consistently high independence scores registered by upper level readers across the board. Is a group

independent person typically better able to read, better motivated to read, or is this high score on Q2 a reflection of a more self-sufficient attitude which proficiency in any field is apt to engender?

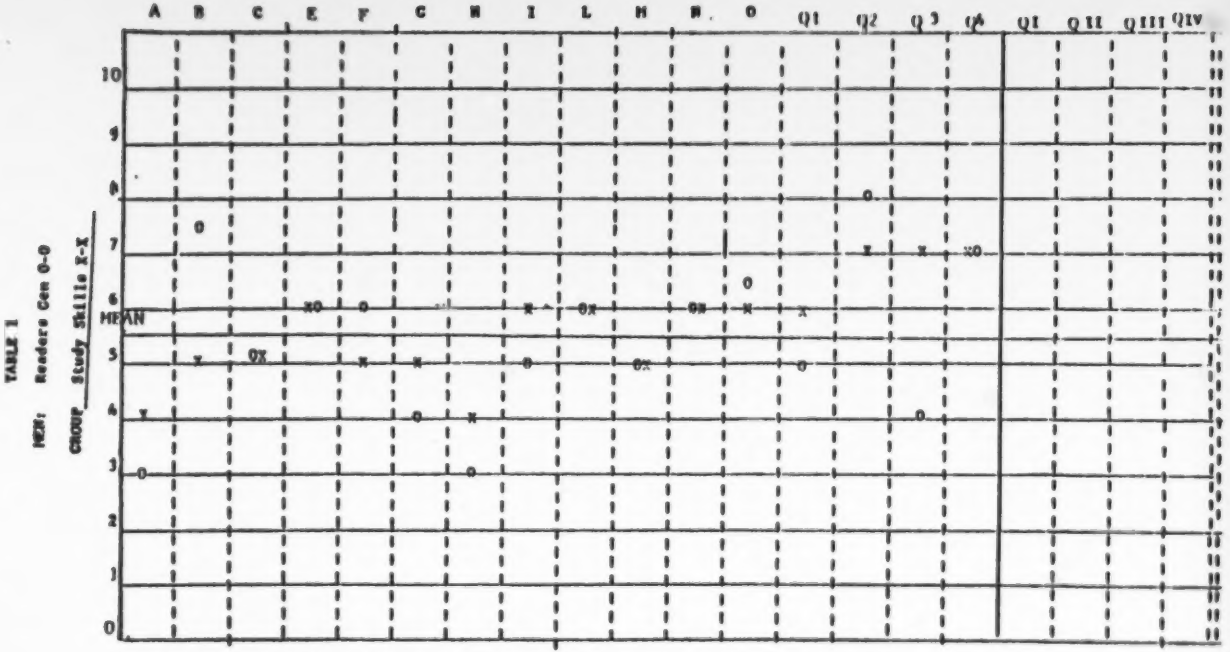


Table 1 - The major difference between the good male readers and the males in the study-skills group is in intelligence (B), and in self-image and will power (Q3). The study-skills group appears to be more compulsive and more apt to follow their self-image.

TABLE 2

Women:
Readers Gen Pop 0-0
Group: Study Skills X-X

Table 2 - The major differences between the good female reader and the female study-skills group are that the good reader tends to be more critical and precise (A), more unruffled (C), more absorbed in idea and imaginative, less anxious (O), (Q_4), and more independent (Q_2), than her counterpart in the skills group.

TABLE 3

MEN:

GROUP: Good Gen 0-0 / Poor Gen X-X

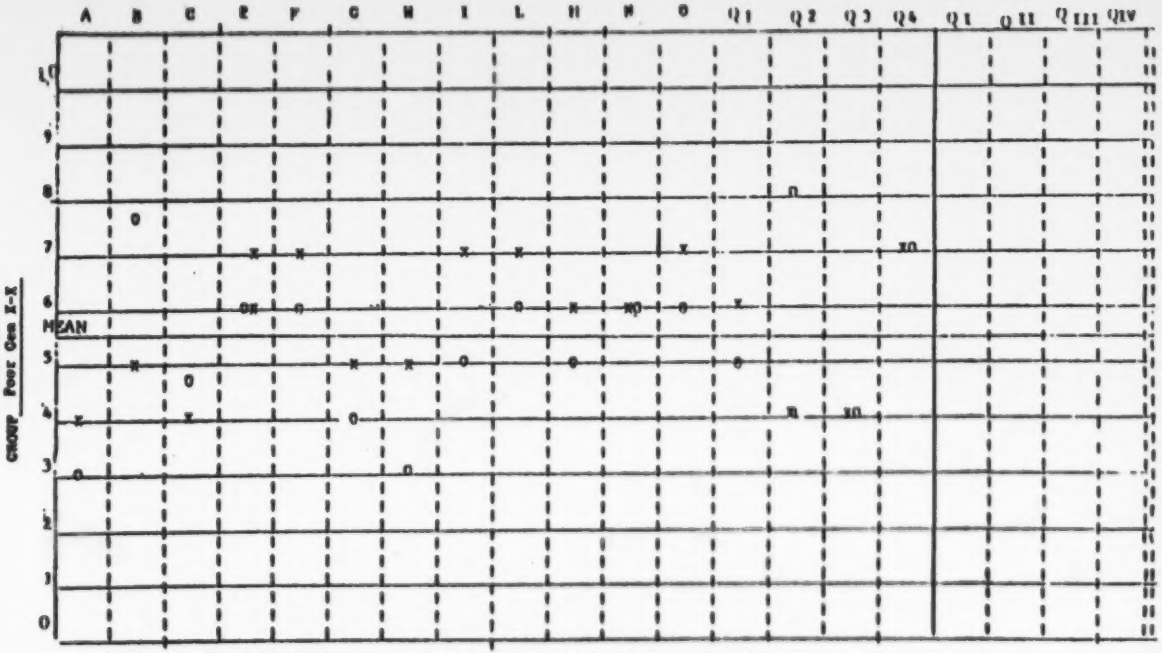
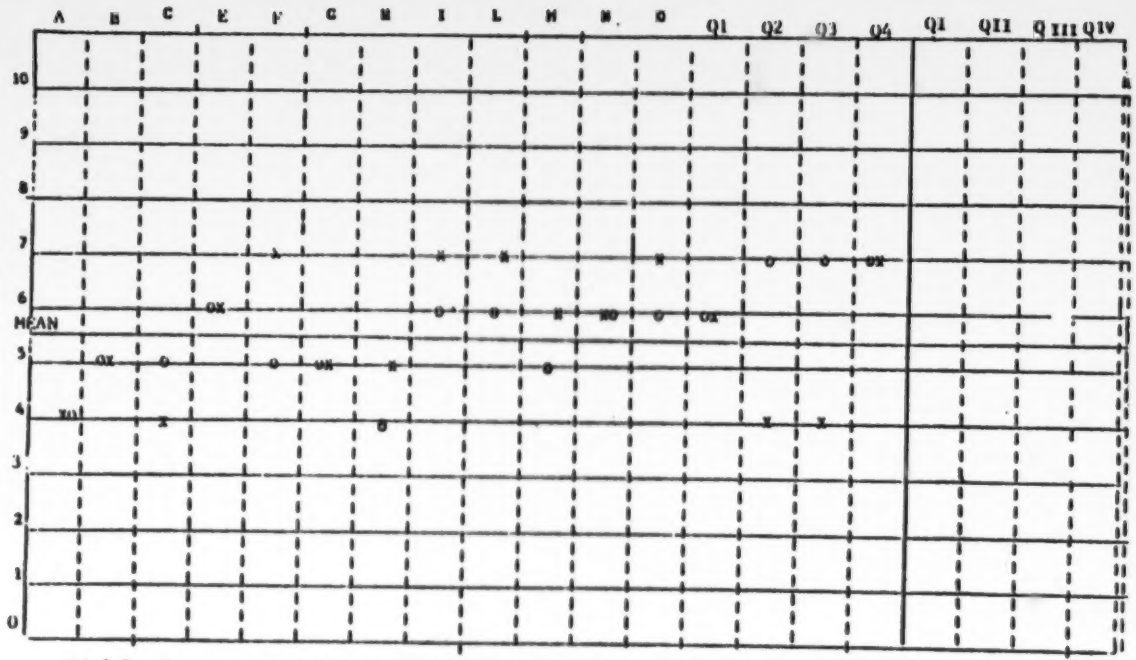


Table 3 - The major differences between the good readers in the general population and poor reader in the general population are the good readers are more intelligent (B^+), more careful and shy (H-), less flighty and hypochondriacal (I-), and more independent (Q_2).

Table 4 - Good women readers appear to be more stable and factual (C), less happy-go-lucky and group dependent (F), more absorbed in ideas and imaginative (M), more insightful and exacting (N), less anxious and hypochondriacal (O), (Q_4), than her female counterparts.

TABLE 5

MEN: Poor Gen X-E
Study Skills O-O E, Q2, Q3
GROUP



Tabel 5 - The poor general reader is more happy-go-lucky (F+), more group dependent ($-Q_2$), more lax and careless ($-Q_3$), than his study-skills counterpart.

TABLE 6

WOMEN: Poor Gen X-X
STUDY SKILLS 0-0
GROUP _____

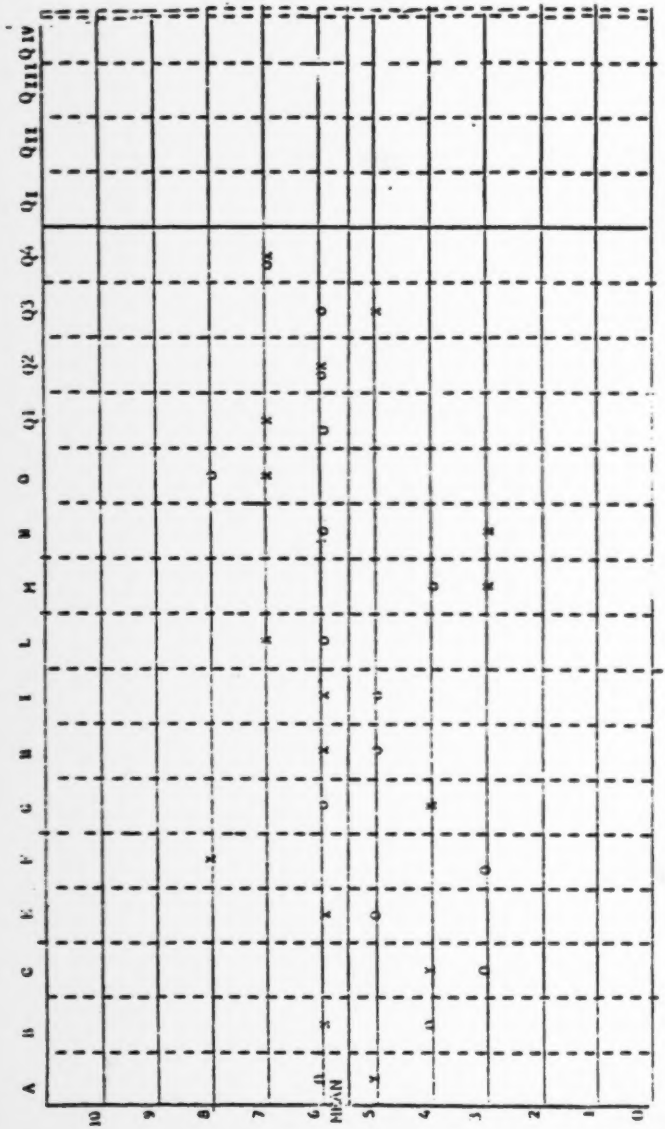


Table 6 - ... poor female general reader is more intelligent (C+), ... emotional and group reflective (F+), more quitting and slack (G-), more content, injudicious, and lacking insight (M-), than her study-skills counterpart.

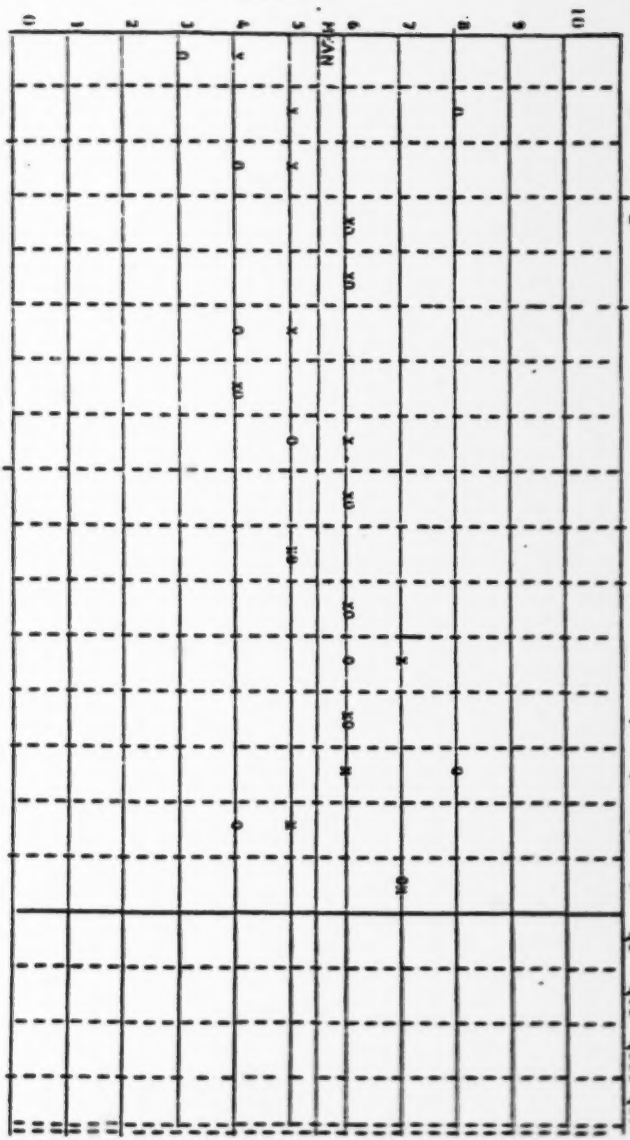


Table 7 - The male readers above the 10.6 grade level is more intelligent (B+), more self-confident (O), and more independent (Q2+), than those males reading 10.5 or below.

TABLE 8

GROUP: 10.6 & Above O-O
10.5 & Below X-X

Table 8 - The female reader above the 10.6 grade level is more critical and objective (A-), more imaginative and absorbed in ideas (M+), and less anxious (O), (Q+), than the female reading 10.5 or below.

TABLE 9

Correlation Coefficients

	MALE			FEMALE		
Factor	Vocab.	Comp	Total	Voca.	Comp	Total
A	-.51	-.45	-.44	-.09	-.11	-.09
B	.85	.92	.92	.05	.02	.02
C	-.24	-.35	-.25	.16	.14	.16
E	.30	.14	.26	.09	.38	.27
F	-.02	-.07	-.01	-.14	.24	-.01
G	-.27	-.31	-.30	-.23	-.04	-.22
H	-.12	-.17	-.10	.31	.31	.37
I	-.21	-.30	-.28	.12	-.06	.11
L	-.08	.04	.04	-.02	.24	.09
M	.00	-.11	.01	.58	.69	.66
N	.02	.34	.06	.03	-.24	-.14
O	-.05	.12	-.08	.18	.21	-.34
Q1	.26	.21	.24	-.10	.35	.06
Q2	.49	.67	.50	.38	.22	.29
Q3	-.23	-.26	-.31	.23	.11	.21
Q4	-.14	.26	.18	-.41	-.47	-.49
N = 22				N = 22		

Needed for significance .05 .423

.01 .562

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Effects of a Reading and Study Skills Program on Academic Performance and Retention in a Technical College

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ABSTRACT

Investigated the effects of a reading and study skills program in a two-year technical college on academic performance and retention. The study used 125 students enrolled in a reading and study skills program as the experimental group and a stratified random sampling of 125 students attending the same college, matched in terms of high school rank who were not enrolled in reading and study skills as the control group. Quarterly GPA's (a) for all students in the sample, (b) for students with low high school rank, (c) for students with higher high school rank, (d) for the specific quarter that students took a reading and study skills course, and (e) for retention at the college for the two groups were compared. A positive effect on academic performance was noted fall quarter only and a significant effect was indicated on retention. The results are discussed in light of the implications for further evaluation of a reading and study skills program at the college level.

The Open Door Admission Policy of many two-year institutions of higher education has made post-secondary education available to an increasing number of students. This has meant an influx of people with an expanded range of academic abilities. To prepare students at the lower end of this range for success in their

academic programs, many two-year colleges have established reading and study skills programs. (Millas, 1978)

The University of Minnesota - Crookston, a two-year technical college, has such a reading and study skills program. Through the orientation and registration process, most full-time students have their reading skills assessed. On the basis of the reading scores and high school rank, counseling staff recommend to faculty advisors if individual students should be encouraged to participate in study skills. However, whether the program helps students achieve academically and persist in college is a worthy question to be investigated in view of (a) the competition for financial resources within higher education and (b) the time commitment of the students enrolled in the program.

Background

Few studies have investigated the effect of reading and study skills programs on grade point average in two-year technical colleges. A review of research in four-year college reading programs (Tillman, 1973) concluded that students completing reading programs (Tillman, 1973) concluded that students completing reading courses tend to have only slight increases in grade point average. Other research reviews (Bliesmer, 1970; Phillips, 1972; Raygor, 1974; Fairbanks, 1975) reported mixed results, as did studies by Bahe (1969) and Belcher (1971). Kerstiens (1971), Bliesmer (1970) and Summers (1970) annotated studies that included two-year colleges. Positive effects were reported

by Mains and Collins (1960), Smith (1962), Freer (1968), Brown, Watson, and Bowden (1970), Livingston (1972), and in a Report on the Low Ability Students at Miracosta College (1966). Handy (1965) showed mixed results. Studies by Gaither (1968), Anderson (1969), Losak (1970), Schoenberg (1970), Reese (1975), and Ugland and Duane (1976) indicated little effect on grade point average for students enrolling in college reading programs.

Research done on the effect of reading programs upon retention have been positive. Mains and Collins (1960), Smith (1962), Gaither (1968), Anderson (1969), and Brown, Watson and Bowden (1970) reported that retention improved significantly in two-year college reading programs. In the programs they studied, Hinton (1961) and Losak (1970), however, concluded that there was no substantial evidence to demonstrate a lower attrition rate.

The Study

The purpose of this study was to investigate the effectiveness of a reading and study skills program on students from a two-year technical college in terms of (a) grade point average, and (b) retention.

Procedure

One hundred twenty-five students in the academic year of 1976 enrolled in the reading and study skills program at the University of Minnesota Technical College were identified as the experimental group. Students were given instruction in

increasing reading rate and comprehension, improving study habits, notetaking, test-taking, improving memory, writing and researching term papers, and vocabulary enrichment. A stratified random sampling of the same number of students attending the college, matched in terms of high school rank, who were not enrolled in reading and study skills, were identified as the control group. Quarterly college grade point averages (a) for all students in the sample, (b) for students with high school rank of 33% or below, (c) for students with high school rank of 34% and above, (d) for the specific quarter that students took reading and study skills, and (e) for retention at the college were compared.

Results

In evaluating the grade point averages achieved by students in the experimental and control groups over the fall, winter, and spring quarters, no significant differences were found between the groups. Neither students with low high school rank of 33% and below, nor students with high school rank of 34% and above achieved a significant difference in grade point average.

According to the data, there was evidence that the reading and study skills program had more effect on academic performance during the specific quarter the students were participating in the program (Table I). Although this finding was not consistent over the entire year, significant difference in GPA was achieved during the fall quarter.

Table I

MEAN DIFFERENCE IN GPA's ACHIEVED DURING SPECIFIC QUARTER WHEN THE READING AND STUDY SKILLS WAS TAKEN

	E-C	N	t
Fall	.3725	57	2.96*
Winter	-.0965	34	-.57
Spring	-.1609	15	1.20

*($p < .01$)

The reading and study skills program did have a positive effect upon retention. Significantly more students dropped out of the control group than the experimental group (Table II).

Table II

NUMBER OF DROPOUTS WITHIN THE EXPERIMENTAL (E) AND CONTROL (C) GROUPS

	E	C
Winter	5	13
Spring	15	26

$z = 2.36$ ($p < .01$)

Discussion

The major finding of this study was that the reading and study skills program had a significant impact upon retention. Twenty-four percent of the students dropped out of the control group as compared to twelve percent from the experimental group. This finding was supported most currently by Brown, et.al. (1969), but not corroborated by Losak's (1970) research.

The program did not have an effect on overall academic performance using grade point average as the criterion except during fall quarter when the students were enrolled in the reading and study skills along with their other courses. Possible reasons that the beneficial effect was not evident during the winter and spring quarters may be that (1) after fall quarter the number of students enrolled in the program declined, and (2) the students with lower GPA's did not persist in school and, therefore, were eliminated from the study. It should be noted that the influence of the reading and study skills course on retention and on grade point average for fall quarter could be due to the personal interaction and attention students receive in a study skills course rather than on course content or any specific teaching technique. This, however, does not denigrate the study. It rather points out the positive attributes of offering a reading and study skills program at the two-year college level.

It also points out that grade point average and retention should not be the sole criterion measure for evaluating reading program (Bliesmer, 1970; Maxwell, 1971; Tillman, 1973; Anderson, et.al., 1974, and Anderson, 1975). Factors such as attendance, informal feedback from students and faculty, student personality variables, locus of control, and motivation should also be considered. Call (1977) suggested that reading attitudes and methodology be incorporated into research on reading programs. Ewing (1970) stated that even if GPA doesn't improve, an evaluation that showed increase in

reading skills justified any program. Fairbanks (1975) concurred and indicated further that staff enthusiasm and preparation, the particular curriculum that the student is enrolled in, level of initial skills of the student, and scholastic aptitude could weight the results of grade point average and reading program effects.

Although positive effect on academic performance was not entirely supported by this study, the reading and study skills program did influence retention. It is possible that students gained confidence in themselves and their abilities through the individualized attention given in the program. Through this support mechanism, students may have persisted in college. This influence on retention was, in itself, enough to justify the financial expense of the program and the time and efforts of the students.

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Comparing Visual/Tactile Performance and Reading Achievement

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ABSTRACT

There is a great need for reading improvement at all educational levels. Because many past instructional practices stressing perceptual training do not work well, the question arises, is reading as much of a perceptual process as is presently believed?

This study attempts to test the role of perception in the reading process by determining the relationship between student performance on an objective measure of visual-motor perception and their performance on a standardized, norm-referenced reading achievement test.

No significant relationships were found. The author feels further study of the role of perception in reading is warranted.

Skill in reading is an important ingredient in the make-up of an educated citizenry living in a democratic society. One must read to remain well informed so that subsequent citizenship responsibilities can be carried out intelligently. Moreover, the importance of being able to read well is recognized by educators, many of whom strive mightily to help their

students read at a level commensurate with ability. So the importance of student reading proficiency in our modern educational endeavors is unquestioned. Most, if not all, academic subjects are learned through the reading process (Heilman, 1977).

However vital reading skills are, whatever time and effort have been expended in developing and improving reading proficiency, the sad fact remains that many individuals do not read well. Educational studies show large numbers of students to be such poor readers, they do not readily benefit from their exposure to classroom reading instruction (Spache and Spache, 1977).

The real causes of this phenomenon are not adequately known but it can probably be assumed that, (whatever the etiology), it is multiple rather than single. Multiple because there are so many forces at work helping or hindering the student. Proper nutrition or its lack affect the learner. The self-image, whether positive or negative, has an impact on the learner. Methods of reading instruction, whether visual, auditory, or motor may be suitable or not depending upon the unique learning modality of the student (Ekwall, 1976).

The reading problem has been recognized for many years and many remedies have been suggested. Some are simple and some are complex. Some work well and some do not. When procedures to eliminate reading problems do not produce positive results, reading deficiencies remain to plague students as they grow toward maturity (Loyd, 1972).

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Because there are so many poor readers in our society despite remedial efforts, a re-examination of reading theory and practice seems warranted. Since a complete re-examination was not feasible, a limited study was planned and carried out to test a single facet of the total reading theory matrix. That was to test the assumption that reading is a perceptual process. (Perhaps the perceptual theory is incorrect). Perhaps too much emphasis on perceptual training can explain why there are so many poor readers.

Introduction--Initially, it may appear that reading is indeed a perceptual process. We know that a reader needs to visually perceive the print on a page and, concurrently, decode the graphic representations of the author's thoughts. Initially, reading is a visual-perceptual process, although there is much more to reading. It also involves a process of auditory perception and discrimination because decoding requires the association of sounds with symbols. It would appear that visual perception is the major process in reading and this accounts for the emphasis on visual perception activities widely used in present-day developmental and corrective reading instructional programs (Lloyd, 1969).

Yet many individuals remain poor readers after this training. Clearly something is wrong.

Is it possible that this part of our reading theory is incorrect? Could the visual-perceptual development activities be of dubious value to students? Is there indeed a possibility that reading is less

of a visual/perceptual process than presently assumed? Are students (and teachers) wasting their time with these (busywork) activities? (Ekwall, 1976).

Statement of the Problem--The primary purpose of the present study was to test the theory that reading is a perceptual process. This was carried out by determining the relationship between student performance on an objective measure of visual/motor perception and their performance on a standardized, norm-referenced reading achievement test.

The present study was also undertaken to establish performance norms on the measure of visual-motor perception because none exist at the present time. This was the secondary purpose.

The tertiary purpose of the study was to determine the differences of performance between the sexes. Are there performance differences between males and females and, if so, what are those differences?

These were the guiding questions used in the study:

1. What relationship exists between student performance on a standardized reading achievement test and their performance on a test of visual/motor accuracy?
   a. Do those who perform well on the reading test also perform well on the perception test?
   b. Do poor readers perform poorly on both tests?

2. What are the individual characteristics of those students who ranked as being most accurate in their performance on the test of visual/motor perception? (least accurate?)
3. What is average performance on the measure or test of visual/motor perception and what are performance parameters?
4. Do males perform better than females (are they more accurate) on the measure of visual/motor perception? That is to say, are there significant performance differences between the sexes?

Review of Related Literature--There is indeed a vast amount of experimental literature on the subject of perception (visual, auditory, and motor) probably because of the assumption that the development of these skills is an important adjunct to teaching reading. Many studies have been carried out to discover the relationships existing between measures of perception and reading achievement, but the results of these research efforts tend to be ambiguous. The experimental evidence of some studies show significant relationships existing between visual/motor perception and reading achievement, but the results of other studies show little or no such relationships.

Many well-known and respected authorities in the field of reading support the thesis that reading is a perceptual process. They recommend appropriate training through the use of vast quantities of visual/perceptual/motor activities as viable supplements to the

developmental and corrective reading programs for students.

Gibson and others attempted to isolate the particular factors which make for pupil ability to visually discriminate among letters of the alphabet. She noted that the accurate identification of letters involves skills that require pupils to isolate and focus on those letter features critically different from others. Her study, in which letter-like forms were used, appeared to demonstrate that normal pupils learn something that makes better letter discrimination possible. She concluded,

> . . . it is the distinctive features of grapheme patterns which are responded to in the discrimination of letter-like forms. The improvement in such discrimination from four to eight (in normal children) is the result of learning to detect these variants and becoming sensitive to them (p. 904) (Gibson, et. al)

The implications of the Gibson study are clear: teach children to read by improving their visual/perceptual abilities. Moreover, many reading specialists seem to believe that visual skills are significantly related to word recognition. Vernon, for one, believes that students who have reading problems also have perceptual difficulties. Such readers cannot readily distinguish one letter from another, nor can they recognize significant details. Furthermore, problem readers tend to be confused about the directions of letters and words (Vernon). Cohn's study substantiates the findings of Vernon. He noted that children are

frequently unaware of the specific nature of some of the simplest looking letters and that even the letter d is not easily recognized (Cohn).

These same authorities also recognize that while there are large numbers of poor readers in our schools relatively few students read to the maximum of their potential. This occurs in spite of visual training. Students lack the necessary reading skills and the desire to perform adequately in academic areas. Vocabulary knowledge and comprehension skills as well as the need to read are inhibiting factors. If the theory is correct, why is there such poor reading achievement among these students?

Some current research casts considerable doubt on the perceptual theory. In one study it was discovered that no significant relationship exists between word recognition ability and visual discrimination skills (Larson and Hammill). In another study it was concluded that there was no relationship between word recognition skills and visual discrimination errors (Ash and Buckland). One expert is of the opinion that we really do not know how words are identified. He writes:

> The actual process by which we recognize words is not well understood, simply because the whole process of "pattern perception," as it is called, is one of the most mysterious problems in psychology. (Carroll p.9).

From this brief review of the related literature one may draw a number

of conclusions. Among them are the following:

> Many investigators have been unable to relate specific perceptual abilities to particular reading skills (Ash and Buckland)
>
> Few studies have been carried out to discover the special kinds of visual skills related to selected components of reading (ibid)
>
> It has not yet been determined whether the type of discrimination skills described by Gibson and others are viable in more complex reading requirements such as word recognition. (Carroll)

The implications of these and other studies seems clear. No consistant and significant relationships have been found to substantiate the theory of reading as a perceptual process. Visual skills needed to distinguish between experimental variables such as artificial graphemes do not seem essential to pupil recognition of words. The value of placing students in learning situations specially designed to improve visual/perceptual deficiencies is questionable. The time, effort, and expense given to such training activities should be re-examined in light of these studies.

And most important of all, the theory itself is open to question.

Design of the Study. The present study was cross-sectional in nature and consisted of two testing phrases. Students in grades four, five, and six were tested

with the Gates-MacGinitie Reading Survey D - Form 1. The regular classroom teachers administered the tests and then turned them over to the chief researcher's associate for scoring and tabulating. The second testing phase consisted of performance measures on the Howard-Dolman Apparatus (Lafayette Instrument Company) which is a stereopsis screening instrument. This was done to quantitatively measure the visual perception accuracy of each subject. Testing with the Howard-Dolman Apparatus and subsequent data tabulation were done by the chief researcher and his research associate.

The Howard-Dolman Apparatus is an instrument designed to test for and measure acuity of depth perception. It is an out-growth and refinement of the Helmholtz three needle experiment (Woodworth and Schlosberg, 1965). The present apparatus, redesigned by Howard consists of two rods suspended within an enclosed housing. The subject's task is to align the rods so they are precisely side-by-side. The subject moves the rods back and forth by means of a cord attached to rod guides. In doing this, the subject uses visual/motor sensory impressions to make appropriate judgments. Accuracy is measured by a centimeter scale mounted on top of the housing. A pointer indicates the distance each rod has moved away from perfect alignment. (zero error)

The housing contains its own lighting system and provides uniformly diffused illumination. The two rods are seen through an aperture from a distance of twenty feet. This design eliminates extraneous clues and requires the subject to make discriminations on the basis of

binocular vision and hand-arm-finger (visual/motor) movement perception clues.

Participating teachers administered the reading test simultaneously. Afterwards the chief researcher began testing with the Howard-Dolman Apparatus. This took place in a portable classroom. The apparatus was placed at one end of the classroom and the subject was seated precisely twenty feet from it. After a brief orientation, the subject attempted to align the rods so they were side-by-side. Each subject had a total of ten trials at rod alignment and then returned to the regular classroom. After each trial, the chief research reset the rods so they were out of alignment, walked to the subject, handed over the rod alignment actuating cord, and told the subject to try again. Performance scores were recorded on the record sheet specially prepared for that purpose (Appendix A).

This data gathering process was begun at precisely the same time each morning, one class per day, until all classes had been tested. A final make-up day was scheduled for absentees and handled in the same time fashion.

When all data were collected, they were tabulated by the chief researcher's associate, checked by the chief researcher and then analyzed for significance. A two-tailed t probe was used for this purpose.

Upper elementary grade students (grades four, five, and six) were used in the present study because they were receiving developmental reading instruction and had matured physically so they could

perform adequately on the Howard-Dolman Apparatus. Younger subjects (grades, one, two, and three) were not used because they tend to lack visual/motor coordination. Their fine muscles have not yet fully developed (Olson, 1959). Older students (grades seven and above) typically do not receive developmental reading instruction in any of their courses. For this reason it was deemed inappropriate to include them. The population sample, therefore, included subjects who had matured in perceptual/motor skill development and who were also receiving reading instruction.

Treatment of the Data and Findings. Data were tabulated and tested for the purpose of determining the significance of relationships existing between performance on the Howard-Dolman Apparatus and performance on the Gates-MacGinitie Reading Tests Survey D - Form 1. There are four subtest scores on the reading test: speed, accuracy, vocabulary, and comprehension. There are two subtest scores on the Howard-Dolman Apparatus, minus deviation and plus deviation from the mid-point of zero error in rod alignment performance. These error scores were combined to give a total error score in centimeters.

All performance data were tabulated by grade level and instrumentation. This information is presented on the ensuing tables. The first of these, TABLE I, contains information for the three fourth-grades. An examination of TABLE I reveals no significant differences between and among the fourth grade classes. Accuracy in visual-perceptual performance on the Howard-Dolman apparatus (mean performance)

is similar for the three fourth-grades. The pattern of error is clearly indicated. Minus error (esophoric vision) is significantly less than plus error (exophoric vision). The implications of this phenomenon are not clear at present and warrant further investigation. In grade 4-1 the mean minus error was 7.7 cm. In grade 4-2 the error was 7.9 cm, and in grade 4-3, it was 9.1 cm. By contrast, the mean plus error in grade 4-1 was 16.8 cm, or more than twice the minus error. In grade 4-2 the plus error was 14.0 cm, or almost double the minus error. In grade 4-3 the plus error was 14.1 cm, or 6 cm. greater than the minus error.

An examination of the standard deviations for the minus scores reveals that in each fourth grade the variance was greater than the average total error. This is a clear indication of the non-linear nature of the visual perception task in the esophoric mode. However, if we look at the positive error scores it is clear that the standard deviations are less than the average total error. This would seem to indicate that exophoric vision is more stable, but the mean plus error is about double that of the minus error. And this would seem to indicate greater inaccuracy in the exophoric mode. These data clearly support the growth phenomenon of initial hyperopia in young children.

The results of pupil performance on the Gates-MacGinitie Reading Tests-Survey-D are linear in character. Reading test scores are consistent with the original norming data. This group of fourth graders performed as expected. It will be noted that students in grades 4-1 and 4-2

TABLE I

FOURTH GRADE PERFORMANCE SCORES: HOWARD-DOLMAN TEST OF VISUAL-MOTOR ACCURACY AND THE GATES-MACGINITIE READING TEST, SURVEY D

Grade	HOWARD-DOLMAN						GATES-MACGINITIE							
	Minus Error (cm)		Plus Error (cm)		Total Error (cm)		Attempted		Correct		Vocabulary		Comprehension	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
4-1 (N=24)	7.7	7.8	16.8	13.3	24.2	17.9	17.25	7.18	16.13	6.69	28.54	5.84	32.92	8.92
4-2 (N=27)	7.9	10.9	14.0	11.0	21.9	17.5	17.44	4.21	16.19	4.57	30.19	6.24	30.48	10.02
4-3 (N=26)	9.1	10.3	14.1	9.3	23.2	13.0	14.19	5.88	13.19	5.36	26.85	6.30	30.81	10.02
Totals (N=77)	8.3	9.7	14.9	11.3	23.0	16.0	16.29	5.94	15.16	5.67	28.53	6.21	31.35	9.62

read at a consistently higher level than those in grade 4-3 in the number of reading rate paragraphs attempted, the number of reading rate paragraphs correct, and vocabulary knowledge. However, the differences were not significant. Students in grade 4-1 were, on the average, higher in comprehension than those in grades 4-2 and 4-3, but those differences were not significant.

In TABLE II, performance information is presented for the subjects in all fifth grade class. Scores are similar to those in the fourth grade. That is to say, the pattern of accuracy/inaccuracy with the visual perception task is the same. An examination of TABLE II reveals the following: minus scores (esophoric vision) are less error prone than plus scores, yet there is a wide variation in pupil performance. In grade 5-1 the average minus error was 6.0 cm. In grade 5-2 the error was 9.8 cm, and in grade 5-3 the error was 8.0 cm. Comparing these data with the plus error, it is apparent that exophoric performance is more inaccurate. The average plus error for students in grade 5-1 was 15.4 cm, more than twice the minus error. The average plus error for participants in grade 5-2 was 12.7 cm, or about 3 cm greater than the minus error. The average plus error for students in grade 5-3 was 12.0 cm., or 4 cm greater than the minus error. So for the fifth grade subjects, it can be observed that the plus error, although larger than the minus error, seems less for students in grades 5-2 and 5-3. The students in grade 5-1 had a plus error of more than double the minus error, a phenomenon worth further investigation.

TABLE II

FIFTH GRADE PERFORMANCE SCORES: HOWARD-DOLMAN TEST OF VISUAL-MOTOR ACCURACY AND THE GATES-MACGINITIE READING TEST, SURVEY D

Grade	HOWARD-DOLMAN						GATES-MACGINITIE							
	Minus Error (cm)		Plus Error (cm)		Total Error (cm)		Attempted		Correct		Vocabulary		Comprehension	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
5-1 (N-21)	6.0	7.7	13.4	11.1	22.0	16.4	25.67[c]	8.3	22.81[a]	8.1	30.71	7.6	32.67	12.4
5-2 (N-22)	9.8	7.8	12.7	9.0	22.3	14.3	17.95[c1]	7.0	17.27[a1]	7.0	30.41	6.0	36.23	9.7
5-3 (N-20)	8.0	10.0	12.0	9.9	20.0	15.0	14.50[c2]	5.7	14.30[a2]	5.8	31.15	8.1	37.25	10.1
Totals (N-63)	8.0	8.4	13.4	10.0	21.4	15.0	19.43	8.4	18.17	7.8	30.75	7.2	35.36	10.8
		[c-c1 = .02p c-c2 = .002p		[c1=.001p a2=.001p										

Examining the standard deviations is the next step. A look at the standard deviation for grade 5-1 shows that it is larger than the mean performance (SD=7.7 cm: M=6.0 cm). But that pattern does not fit grade 5-2. Here the standard deviation was 7.8 cm while the mean was 9.8 cm. However, the scores for grade 5-3 revert to the initial pattern where the standard deviation is 10.0 cm and the average error is 8.0 cm. From these data it is clear that for two of the three fifth grades the pattern of accuracy in the esophoric visual mode is similar to that of the fourth grade participants. Yet for grade 5-2 this is not so and can lead to the assumption that this phase of the visual perception task may be chronological age/visual maturity oriented. The trend may or may not be significant and must await our examination of performance scores for the sixth graders.

The plus error pattern is, again, larger than the minus error, but the standard deviations are less than the average error score. This would seem to indicate that exophoric vision is more stable, yet the mean plus error is larger than the mean minus error. However, it is less in the fifth grades than in the fourth grades, and the pattern again supports the growth phenomenon of initial hyperopia which gradually diminishes as chronological age and maturity increase.

Performance on the Gates-MacGinitie reading test did reveal significant differences between groups. Grade 5-1 scores in number of speed and accuracy paragraphs attempted was 25.67 and significantly higher than grade 5-2 (17.95) and grade

5-3 (14.50). This same phenomenon held true for the number of speed and accuracy paragraphs correctly answered. Students in grade 5-1 had 22.81 correct while grade 5-2 had 17.27 correct and grade 5-3 had 14.30 correct. There were no significant differences in vocabulary or comprehension.

In TABLE III performance data are shown for all sixth grade participants. It will be noted that, once again, the performance scores for the Howard-Dolman apparatus are similar in pattern when compared with previous grades. It seems that the mean minus error continues to be less than the mean plus error and the standard deviation continues to be larger than the average performance. This is true, with the exception of grade 6-3. Sixth graders continued the pattern of greater accuracy in esophoric vision and greater inaccuracy with exophoric vision. However, it will be noted that students in grade 6-1 and grade 6-2 had a mean error score of 8.0 cm and 8.1 cm, respectively, and that this comes rather close to the mean plus error (11.6 cm and 11.2 cm). It would seem that the students in these classes were maturing, visually, to a point of greater equality in performance error. This, of course, supports the theory of vision stability in which young children on the average gradually outgrow hyperopia.

But such is not the case with students in grade 6-3. The average minus error is 7.1 cm with a standard deviation of 7.1 cm. The mean plus error is 14.0 cm or about double. So it is difficult to draw conclusions from these performances because there is no significant relationship evident. However, the average minus

error is moving closer to average plus error. Moreover, the average plus error is decreasing with successive chronological ages. Once again examining the tables shows the following: the average minus error for all fourth grades was 8.3 cm with a standard deviation of 9.7. For the fifth grades it was 8.0/8.4 and for the sixth grades it was 7.8/8.5. Clearly, the average performance was becoming more accurate with higher age levels, but the differences were not significant.

On the other hand, average plus error for all fourth grades was 14.9 cm with a standard deviation of 11.3 cm. Average fifth grade performance was 13.4/10.0 (a difference of 15 mm) and for the sixth graders it was 12.2/10.3) (a difference of 12 mm). Our statistical treatment indicates that these differences are not significant, but the trend is clearly there. That is to say, we may suppose that students at successively higher levels of chronological age will perform with greater accuracy on the Howard-Dolman apparatus. They will do so up to an age level, as yet unknown, and then accuracy will begin to deteriorate, indicating the curvilinear nature of this task. Although there are no data to substantiate this theory, it appears to be a reasonable assumption and worthy of investigation.

Turning now to the performance scores on the Gates-MacGinitie reading tests for the sixth graders, our statistical treatment revealed that students in grade 6-2 were significantly faster than those in grade 6-3. The pupils in grade 6-2 attempted to read a significantly higher

TABLE III

SIXTH GRADE PERFORMANCE SCORES: HOWARD-DOLMAN TEST OF VISUAL-MOTOR ACCURACY AND THE GATES-MACGINITIE READING TEST, SURVEY D

Grade	HOWARD-DOLMAN						GATES-MACGINITIE							
	Minus Error (cm)		Plus Error (cm)		Total Error (cm)		Attempted		Correct		Vocabulary		Comprehension	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
6-1 (N=23)	8.0	10.0	11.6	9.7	19.1	15.7	21.87	5.9	19.09	5.3	31.04	7.4	38.09	9.0
6-2 (N=26)	8.1	8.5	11.2	6.4	19.3	8.1	23.54[	6.4	22.15[a]	7.0	34.96	8.5	42.54	9.8
6-3 (N=24)	7.1	7.1	14.0	13.8	21.1	15.5	18.04[	6.1	17.58[a]	6.2	33.04	8.2	37.67	11.2
Totals (N=73)	7.8	8.5	12.2	10.3	19.8	13.3	21.2	6.5	19.7	6.4	33.09	8.1	39.53	10.2

[.003p
[a] .016p

number of speed reading paragraphs than did those students in grade 6-3. Moreover, they also had a significantly greater number of correct responses. The average number of speed and accuracy paragraphs attempted by students in grade 6-2 was 23.54, but only 18.04 for those in grade 6-2. The mean number correct for students in grade 6-2 was 22.15 and significantly greater than the 17.50 for grade 6-3 students. There were other differences as shown in TABLE III, but they were not significant.

Conclusions. Data from the present study reveal that for the population sampled the following conclusions appear to be warranted:

1. There is no relationship between performance on the Howard-Dolman Test of Visual-Motor Accuracy and the Gates-MacGinitie Reading Tests, Survey D - Form 1.

   Those who performed well on the reading test did not necessarily perform with greater accuracy on the perception test.

   Those who performed low on the reading test did not necessarily perform inaccurately on the perception test.

2. There were no discernable individual characteristics regarding those students who were most accurate or least accurate in performance on the Howard-Dolman Apparatus.

3. Average performance error was

Grade	Mean	Standard Deviation
4	23.0	16.0
5	21.4	15.0
6	19.8	13.3

in centimeters; deviation from the mid-point (zero error)

4. There seems to be no significant difference in accuracy of performance when the scores of the males were compared with the scores of the females.

5. These data appear to indicate that, for the subjects who participated in the present study, skill in reading and skill in visual perception are not related. Therefore, the possibility exists that visual perception training activities are not an aid to reading achievement.

Recommendations for Further Study.--Data and conclusions from the present study clearly warrant further investigation. The extended research should seek answers to these questions:

1. Why is the mean minus error less than the mean plus error?
2. Why is the standard deviation for the minus error larger than the mean minus error, especially for the younger students?
3. Why is the mean plus performance error (exophoric vision) larger than the mean minus error?
4. Does the error in performance with the Howard-Dolman apparatus, indeed,

decrease to some as yet undetermined minimum as chronological age increases? If so, what is the significance of this phenomenon? Students in grades seven, eight and nine should be measured to answer this question: Is performance linear?

5. An in-depth study should be made of the students who performed with greatest accuracy on the Howard-Dolman apparatus and their data should be compared or contrasted with students who performed with the least accuracy (or had the largest performance error).

   Those who were least accurate in performance could be selected and studied to determine if there is a pattern of history or behavior which would explain their performance.

A Final Note--The present study was both exciting and frustrating. It was exciting because the initial hypothesis was supported: there is no relationship between visual perception as measured by the Howard-Dolman apparatus and reading achievement as measured by the Gates-MacGinitie Reading Tests - Survey D. It was frustrating because there was no linearity in performance on the Howard-Dolman apparatus. However, the seminal trend toward greater accuracy with higher chronological ages mandates further investigation.

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Transcendental Meditation and College Grades

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ABSTRACT

This study investigated the effects of Transcendental Meditation Training (TM) on the Grade-Point Averages of university students. Of more than 300 initiates at the University of Illinois at Chicago Circle, there were seventy students who had recorded grades both before and after training in the TM technique. These comprised the Experimental Group. The Control Group consisted of the same number of students individually matched according to sex, college, year in college, prior grades, and first letter of last name. The two groups showed no significant difference in grades for the quarter after the Experimental Group students had TM training. Forty-two of the matched pairs had grades for two quarters after the training period, and again no significant effect was found in the grades. Possible reasons for the results are discussed.

In a study conducted at the University of Illinois at Chicago Circle, 70 students who took a Transcendental Meditation (TM) Technique Initiation Training program were matched on the basis of sex, college, year, prior grades, and first letter of last name with

students who had not undergone TM training. The TM group did not differ in grade point average from the control group for the quarter after training. The same was true for subgroups of 42 matched pairs two quarters after training. No effect upon grades was demonstrated for TM training.

In a search of the literature the authors found that three studies in a publication of the Maharishi International University Press, edited by Orme-Johnson, Domash, and Farrow (1976, pp. 393-395; 396-399; 400-402), reported beneficial effects of Transcendental Meditation (TM) on academic performance at both the high school and college levels. Each of these studies, however, either failed to isolate effects of TM from other concurrent activities or dealt only with those particular TM trainees who became "enthusiastic" about the practice.

Another study by Domino (1977) failed to find standardized test support for a TM claim of increased creativity, and other than in the TM publications and pamphlets, no confirmation of improved grades could be found in the literature. Because TM is marketed on almost every university campus, there appeared to be a need for the present large-sample, well-controlled study of what happens to the grades of the run-of-the-mill student who volunteers for TM training.

Method

The subjects selected for the study were 380 students who completed the Transcendental Meditation Technique

Initiation Training program at the University of Illinois at Chicago Circle. Of these, there were 70 who had grades there prior to TM training and for at least one quarter after training. Forty-two had grades for two quarters after training. These 70 comprised the experimental (TM) group. The remainder of the 380 either (a) had no prior grades, (b) had no subsequent grades, or (c) were not students at this university.

The authors carefully examined the records of thousands of other students at this university to obtain a control group as nearly identical to the TM group as possible. In order to accomplish this, each member of the TM group was matched with a student in the control group on the basis of sex, college in which enrolled at time of training, year in college at the same calendar time period, prior grades (allowable deviation being plus or minus .2 grade points), and first letter of last name. With the exception of the last item, these are all factors that countless studies have shown to be related to grades. Unfortunately, it was not possible to control for age, which also usually correlates with grades. In addition to prior grades almost identical with the TM partner, the control group member needed the same number of quarters of subsequent grades. Grades for the quarter during which TM training was taken were not considered in the study.

The grades of all involved students were collected then pre-training and posttraining grades were averaged for all groups. The TM groups were compared

with the control groups by means of tests for correlated means. Grades for the 42 pairs of students in the subgroup were included in the total of 70 pairs for analysis of grades one quarter after training and were also evaluated separately to determine if a long-range benefit might appear.

Results

Table 1 shows the matching of grades for the quarter prior to training resulted in almost identical averages for the TM and control groups and for both the larger one-quarter sample and the smaller two-quarter sample. Therefore, no adjustment such as analysis of covariance was needed for the comparison of posttraining grades.

For the 70 matched pairs of students, there was no significant difference one quarter after TM training in grade point average between the TM group and the control group. The same was true for grades two quarters after training for the subgroup of 42 pairs. Thus, no effect on grades was found for TM training.

Discussion

It should be noted that the present study as well as those mentioned earlier did not ask TM trainees whether good grades were among their goals for beginning the practice. However, the authors assumed that good grades appear to be an appropriate criterion therefore it appeared reasonable to infer that good grades are among the goals of any group of college students. It is also recognized that proponents of TM have research evidence to show that the continued practice of TM enriches all aspects of

Table 1

Comparison of Pretraining-Posttraining Grades for the Experimental (TM) Groups and Control Group

Grades	Experimental (TM) M	Experimental (TM) SD	Control M	Control SD	Difference	t
Students with first-quarter posttraining grades (n = 70)						
Pretraining	3.89	.76	3.88	.76	.01	.30
Posttraining	3.68	.85	3.66	.86	.02	.16
Students with second-quarter posttraining grades (n = 42)						
Pretraining	3.97	.67	3.69	.65	.01	.37
Posttraining	3.84	.89	3.79	.82	.05	.29

Note. A = 5, B = 4, etc. All $\pm$ values were nonsignificant.

life and that its results are cumulative. This study did not have information on the extent to which students continued the practice of TM.

Previous studies, showing a positive relationship between TM and grades, used selected samples, namely students who became enthusiastic about TM or those who had additional experiences in conjunction with TM training.

The students in this study had no other known common experiences, and many of them never became enthusiastic about TM. They just represented the typical student who undergoes TM training. Therefore, our results do not contradict previous findings because different populations were studied. We would not dispute the claim that the practice of TM over an extended period may be beneficial for some students and even improve their grades. However, we must agree with Lazarus (1976) who said, "TM proves extremely effective when applied to properly selected cases by informed practitioners. (but) It is not a panacea." We hope that this study serves as a stimuli for further research in this area.

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Revision of article entitled "Does Transcendental Meditation Training Affect Grades" Journal of Applied Psychology, 1978, Vol. 63, No. 5, 644-645. Printed by permission of APA.

A Self-Managed Reading Improvement Program

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ABSTRACT

A reading improvement program, incorporating self-monitoring, self-reinforcement, and shaping, was administered to 204 study skills students. There were two self-reinforcement conditions (performance and improvement contingent), a monitoring control condition, and a no treatment control group. The performance contingent self-reinforcement group showed an average increase in reading rate of 35% over the course of the treatment. All three experimental conditions showed significant improvement in rate over the control group. Comprehension was unaffected. There were no differences between males and females or between treatment lengths of six and eight weeks. The results seemed to emphasize the importance of persistent practice in reading improvement and highlighted differences in self-reinforcement strategies in self-management.

Among college students, proficiency in reading has been related to grade point average (Blake, 1956) and scholastic success (Smith & Wood, 1957), and it may well be a central determinant of success both within and without the walls of the university (Harris, 1970). Recently, several investigators have documented that college students are reading at levels which are considered inadequate (Gibson, 1971; Harris, 1976; Kurzman, 1974). Olsen and Swiss (1976) suggested that many students will have difficulty in completing college because of problems specifically associated with reading. To meet the challenge of retaining students with skill

deficits in reading and in other areas, Ferguson (1976) suggested that colleges should provide "instructional programs designed to help ill-prepared students acquire the required skills ... necessary for success in college and, by inference, for success in their life work" (p. 27).

Harris (1970) noted that there were two major types of remedial programs for reading skills. One, called a controlled approach, usually involves the use of reading accelerators and other mechanical devices. A motivated approach, a second type of program, is characterized by a design intended to motivate (or, at least, induce) the reader to do a large amount of reading. In this way, and through the use of timed silent reading trials and subsequent comprehension checks, it is expected that the reader will overcome specific interfering habits, such as excessive eye fixations and extreme subvocalization. Combinations and comparisons of these two approaches have indicated that the motivational aspects of each are important factors in improvement (Brandt, 1975; Harris, 1970).

The potential impact of reading improvement programs can be seen in the results of two representative investigations. Swalm and Kling (1973) evaluated a motivated program and a free-reading control procedure and reported substantially larger gains in reading rate for the students who had done the timed drills ($\bar{X}$pre = 152 wpm, $\bar{X}$post = 408 wpm) over the gains of the others (149 wpm, 180 wpm), without any losses in comprehension. Himelstein and Greenburg (1974) obtained similar results with an operant procedure, increasing the reading rate of the

experimental subjects from an average of 283 wpm to 421 wpm, and decreasing the rate of the control subjects to 260 wpm. They also reported that there were no significant differences between the two groups on the comprehension variable, before or after the experimental manipulation. In general, the motivated approach seems to be effective in increasing reading speed without adversely affecting comprehension.

One area of current psychological research and practice which may be applicable to the improvement of students' reading skills is the area of self-management as any procedure involving self-regulated behavior change in which the individual is regarded as the agent of change, determining the direction, extent, and methods of change. Many behavior problems, from weight control (Harris & Hallbauer, 1973; Mahoney, 1972b) to studying behavior (Jackson & van Zoost, 1972; McReynolds & Church, 1973), have been treated successfully using a self-management paradigm. Extrapolating from these successful applications, there are several elements of self-management which seem to be relevant to reading improvement programs, specifically self-reinforcement, shaping, and self-monitoring. Self-reinforcement is intended to increase the probability of some target behavior either by "the self-presentation of positive consequences (SR+) or by the removal of negative consequences (SR-)" (Mahoney, 1972a). Shaping is achieved by setting intermediate goals and emphasizing gradual improvement (Miller & Gimpl,1972). Self-monitoring of behavior, the observation and recording of relevant activity,

is an integral component of a self-managed intervention and it may be a major factor in producing change. The potential benefits of remedial programs which are designed as motivated approaches may be enhanced by incorporating these self-management principles.

The motivated approach to reading improvement, in fact, lends itself to self-management concepts. It is characterized by self-pacing and self-monitoring (Harris, 1970). Self-reinforcement for either improvement or participation easily can be added as an extension of the monitoring process. Goal-setting can emphasize small increments in rate instead of large eventual gains. It may be that certain strategies of self-reinforcement highlight different components of a reading program, and therefore affect the amount of improvement. It is also important to determine whether the reading program, with or without self-management facets, is able to produce greater improvement than no treatment. These questions are important for what can be learned about self-management and about reading improvement programs. If a reading program can improve the reading and self-management skills of its participants, then it may also serve the larger purpose of developing better functioning students, and, ultimately, better functioning persons.

Method

Participants. Subjects were undergraduate students enrolled in a study skills and personal effectiveness course during Winter Quarter, 1977. Data from 204 subjects (89 males, 115 females) were

collected. The subjects were mostly freshman and sophomore students and the majority were between 18 and 22 years of age. There were seven instructors (1 female, 6 males) who participated in this study. All were second year graduate students in counseling psychology and all had experience in teaching the course. Four of the instructors volunteered to include a reading program in their classes; the remaining three volunteered their sections as control classes. In all, students from 12 sections of the study skills class were involved. Table 1 shows the distribution of participants.

Table 1

Distribution of Participants

	Treatment Type				
Treatment Length	ICR	PCR	MC	NTC	Total
6 weeks	31 (2)	23 (1)	19 (1)	30 (2)	103 (6)
8 weeks	15 (1)	42 (2)	19 (1)	25 (2)	101 (6)
Total	46 (3)	65 (3)	38 (2)	55 (4)	204 (12)

Note. ICR = Improvement Contingent Reinforcement; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; NTC = No Treatment Control. Numbers in parentheses represent the number of class sections in each cell.

Measures. Reading rate and comprehension were assessed by the Robinson-Hall Reading Tests (Robinson & Hall, 1949). The Robinson-Hall tests provide separate measures for rate and comprehension and

have two parallel forms which are appropriate for use in test-retest situations. The Canadian History form was used as a pretest, and the Russian History form as the posttest. Previous research (Ruppel, Note 1) indicated that the means for study skills students on the two tests were different than those in the manual; therefore, the raw scores were converted to standard scores before statistical analysis began. The scores from the subjects in the control groups were used to obtain the means and standard deviations required for this transformation. There were no significant differences between these statistics and those compiled by Ruppel (Note 1).

Reading Program. The subjects were instructed to locate and use in the reading program a book of their own choosing. The materials distributed to them included: (1) a set of instructions, which detailed the mechanics of timing and monitoring their reading trials, (2) a conversion chart, which was used to calculate goals of slight reductions in time for each successive trial, and (3) a weekly monitoring sheet, which provided a standard form for monitoring and recording performance on a daily basis. The instructions called for the students to do a set of four reading trials each day for five days a week. The exercises required the students to time themselves as they read a selected length of page, set a goal of a slight reduction in time needed to read that length of page on the next trial, and then repeat the process three more times. As the program progressed, they were directed to read longer passages (from ½ to 1, 2, 3, and 4 pages), and the

percentages of reduction in the goal calculation were decreased (from 10 to 7, 5, and 3%). In this way, the students gradually increased the amount of their reading, and emphasis was placed on slow but steady decreases in reading times, in keeping with the concept of shaping. Self-monitoring involved filling out the weekly monitoring sheets as they did the exercises. In all, doing the reading trials, calculating the goals, and recording the times required between 10 and 15 minutes outside of class. Following the pretest, the instructors modeled the procedures involved and instructed their students to begin the reading exercises that day. Each week, the participants submitted a completed monitoring sheet and received a new one, until the week of the posttest.

Treatments. The experiment employed a 2 x 4 design, crossing Treatment Length with Treatment Type. The Treatment Lengths were six weeks and eight weeks, representing the intervals between the pretest and the posttest. The Treatment Types referred to the form of self-reinforcement strategy used and were described as:

(a) Improvement Contingent Reinforcement (ICR), in which the participants were instructed to reward themselves only if they surpassed a specified number of goals in the reading exercises each day;

(b) Performance Contingent Reinforcement (PCR), in which the participants were instructed to reward themselves after completing the daily exercises, whether or not their reading times decreased;

(c) Monitoring Control (MC), in which the participants were not instructed in any reinforcement strategy, but were told to do the exercises and record their progress;

(d) No Treatment Control (NTC), in which the participants did not participate in the reading program, except for the pretest and the posttest.

Reward was defined as self-determined pleasurable activity, intended as positive reinforcement.

Assignment of participants to each condition was determined by class section. There were 12 sections and 7 instructors, but, to attenuate instructor effects, no instructor who had 2 sections (there were 5) had both classes in the same cell of the 2 x 4 design.

Overview. All participants were given the Robinson-Hall Canadian History Test as a pretest in either the second or fourth week of the quarter. Then, a standard lecture on reading difficulties was presented to each class. The students in the 8 treatment sections were instructed to begin the reading program that day. The students in the control classes received no further instruction about reading improvement in class during the experiment. The students in all 12 classes were tested again in the tenth week of the quarter with the Robinson-Hall Russian History Test. Students were urged to compare their pretest and posttest scores for both rate and comprehension.

Results

The rate and comprehension scores from the pretest and the posttest for each subject were converted to standard scores. Difference scores (ASS) for each subject were then obtained by subtracting the pretest standard scores from the posttest standard scores for the two variables. Table 2 shows the initial means for rate for each group, as well as the mean changes (in words per minute), estimates of the percentages of the mean changes, and adjusted posttest means for rate. Table 3 presents similar information for the comprehension variable.

Table 2

Group Means for Rate and Rate Change at Posttest

Group	n	X initial rate	X posttest rate	X change wpm	X% change
9 PCR	42	181.70	247.47	65.77	36.20
6 PCR	23	185.27	248.54	63.27	34.15
9 MC	19	171.37	230.47	59.10	34.49
6 ICR	31	193.34	226.73	33.39	17.27
9 ICR	15	162.83	185.20	22.37	13.74
6 MC	19	224.52	236.98	12.26	5.55
9 NTC	25	189.96	197.30	7.34	3.86
6 NTC	30	188.18	180.84	-7.34	-3.90
Total	204	187.48	221.35	33.88	18.07
RP	149	186.92	233.55	46.63	24.95
NTC	55	188.99	188.32	-.67	-.004

Note. 9 = 9 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control; RP = Reading Program (PCR, MC, and ICR groups). Means for initial rate and for change in rate are estimates calculated from the corresponding SS used in the analysis of variance. Means for columns 3, 4, and 5 are expressed in words per minute (wpm).

Table 3

Group Means for Comprehension and Comprehension Change at Posttest

Group	n	$\bar{X}$ initial comp	$\bar{X}$ posttest comp	$\bar{X}$ change comp	$\bar{X}$ % change
9 PCR	42	60.89	52.39	-8.50	-13.96
6 PCR	23	64.20	57.28	-6.92	-10.78
9 MC	19	65.05	58.14	-6.91	-10.62
9 ICR	15	63.34	57.05	-6.29	-9.93
6 MC	19	68.41	63.65	-4.76	-6.96
6 ICR	31	61.52	58.15	-3.38	-5.49
9 NTC	25	63.69	61.58	-2.11	-3.31
6 NTC	30	55.89	57.11	1.22	2.18
Total	204	62.24	58.17	-4.67	-7.50
RP	149	63.27	57.78	-6.29	-9.42
NTC	55	59.44	59.14	-.29	-.49

Note. 9 = 9 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control; RP = Reading Program (PCR, MC, and ICR groups). Means for initial comprehension and for change in comprehension are estimates calculated from the corresponding SS used in the analysis of variance. Means for columns 3, 4, and 5 are expressed in percentages correct.

A three-way analysis of variance for fixed effects using the method of unweighted means was done on each set of difference scores (Myers, 1972). Table 4 displays the results of that analysis for the change in rate scores, and Table 5 displays the results for the change in comprehension scores. An estimate of the proportion of variance accounted for by each factor (ω^2) was calculated and is included for each.

Table 4

Summary of Analysis of Variance for

Change in Rote Scores at Posttest

Source of Variance	df	MS	F	p	ω^2
Treatment Length (TL)	1	31724.67	4.36	.038	.012
Treatment Type (TT)	3	128223.32	17.62	.00.	.172
Sex (S)	1	19743.21	2.71	.101	.006
TL x TT	3	27646.78	3.80	.011	.068
TL x S	1	157.76	.02	.883	0
TT x S	3	10584.50	1.45	.229	.011
TL x TT x S	3	10888.06	1.50	.217	.026
Error	186	7278.28	--	--	.706
Total	203				

Table 5

Summary of Analysis of Variance for Change

in Comprehension Scores at Posttest

Source of Variance	df	MS	F	p	ω^2
Treatment Length (TL)	1	12905.46	1.16	.282	.001
Treatment Type (TT)	3	19707.61	1.79	.153	.010
Sex (S)	1	4162.29	.38	.541	0
TL x TT	3	313.36	.02	.994	0
TL x S	1	8310.37	.75	.388	0
TT x S	3	9261.71	.83	.477	0
TL x TT x S	3	33413.67	3.01	.031	.127
Error	189	11102.07	--	--	.862
Total	203				

Significant effects on reading rate for Treatment Length, Treatment Type, and the interaction of TL x TT are reported in Table 4. Treatment Type and its interaction with Treatment Length combined to account for 24% of the observed variance. Seventeen comparisons were made between the mean change in rate scores of the groups, using the Bonferri t statistic (Kirk, 1968). A schematic summary of those comparisons is presented in Table 6.

Table 6

Summary of Comparisons of Means for Change in Rate

Treatment Length

3 wk 6 wk

Treatment Type

PCR MC ICR NTC

TL x TT

3 PCR 6 PCR 3 MC 6 ICR 3 ICR 6 MC 3 NTC 6 NTC

Note. 3 = 3 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control. Groups underlined by a common line do not differ significantly, and groups not underlined by a common line do differ significantly ($p < .05$).

Groups which received the reading program (ICR, PCR, and MC) increased their rate significantly more than groups which received no specific reading program (NTC). In addition, the groups which used the performance contingent reinforcement strategy (PCR) increased their rate significantly more than all other groups

except for the eight week monitoring control group (8MC). There was no significant main effect for sex on change in rate.

In the analysis of variance for change in comprehension, only the three-way interaction was found to be significant, and it explained 12.7% of the variance. Males generally lost more than females in comprehension over the course of the treatment, except for those in the 8 ICR and 6 PCR groups wherein that condition was reversed. This analysis served as a check against significant decreases in comprehension which might accompany increases in rate. The results generally support the contention that no significant decreases in comprehension occurred.

Discussion

Three major conclusions are suggested by the results presented in the preceding section. The first is that this program of reading improvement instruction, based on a motivated approach and emphasizing shaping and self-monitoring of behavior, was reasonably successful in increasing participants' reading speeds without adversely affecting their comprehension. Mean increases in rate of up to 65 words per minute (wpm), representing a 36% increase over the mean initial rate, were found among a sample of students enrolled in a study skills course (range of mean changes: 12.5 to 65.8 wpm). This improvement was achieved without involving a large amount of time (in or out of class) and without making the reading program a central part of the course. The

incorporation of self-management principles also seems to be an effective method of increasing reading speed. The results reported here support the use of such a program with a population of study skills students, and suggest that other populations, such as regular students or returning adult students, in class or in counseling situations, may also benefit from similar interventions.

The second conclusion supported by the results is that the eight week program produced only slightly greater improvement in rate than did the six week program. This may be due to decreased motivation over time, or to situational, sampling, or testing anomalies. The results do support the use of either length program; it is assumed that the shorter one is favored because of its relative efficiency.

A third conclusion centers around the results which reflected differences in improvement between the reinforcement strategies. The groups using the performance contingent reinforcement (PCR) strategy improved their reading speed significantly more than the improvement contingent reinforcement (ICR) groups ($p<.01$). In other words, the subjects who could reward themselves for doing the exercises conscientiously did better than those who could only reward themselves when they improved. As a consequence, self-reinforcement for trying to improve (whether or not improvement occurred) was more effective than self-reinforcement for improvement. A probable hypothesis for this outcome is that subjects in the PCR condition rewarded themselves more

often and more consistently in connection with the reading exercises and therefore were more likely to do the exercises faithfully. This hypothesis tends to emphasize the importance of practice in motivated approaches to reading improvement (cf. Harris, 1970), and implies that the choice of a self-reinforcement strategy is a salient consideration. The PCR strategy seems to be a good one, and the results support its use in future programs, reading and otherwise.

The monitoring control (MC) groups improved more than was anticipated. It seems that self-monitoring can be a very effective vehicle of change in self-managed interventions. However, the extent of the effect of the MC condition may be affected by the initial rate of the subjects, possibly indicating a ceiling or plateau effect of some sort. It also should be noted that improvement may have an intrinsic reinforcement value which far outweighs any extrinsic rewards, even when the latter are self-administered.

Several of these questions could be explored by an examination of the weekly monitoring sheets. A correlation may exist between the number of self-administered rewards and improvement in the program. Other personality and achievement variables, such as motivation, grade point average, instructor-student relationship, and aptitude scores, may be related to improvement and should be considered in subsequent research.

In summary, a reading program, using a motivated approach and principles of self-management, was effective in producing increases in reading rate without

producing serious decreases in reading comprehension. The results indicated that a strategy which called for the administration of positive self-reinforcement contingent upon the performance of daily reading exercises produced greater increases than either a strategy which required improvement before self-reinforcement or a strategy which contained no instructions about self-reinforcement. This outcome provided support for the hypothesis that persistent practice was a salient factor in reading improvement and pointed toward the importance of the form of self-reinforcement strategy used in self-managed interventions of this type.

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Peer Education At A University: The GUTS/HASH Model of Tutorial Assistance

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ABSTRACT

This article discusses the central elements of the GUTS/HASH model: Close Contact (long-term) tutoring, "Open Hours" lounges for short-term assistance, Study Group facilitation, Study Skills workshops, and a developmental philosophy that views the tutor as the key to the program, and which develops support services to recruit, sensitize and support the volunteer tutor. Behrman views the GUTS/HASH model as being applicable to other universities, and as having educational benefits implying broader potentials for higher education and society. He reports preliminary research conducted on the program.

The University of Wisconsin-Madison has developed a unique approach to assist underprepared students with their course work and study skills development. It relies upon the notion of peer education, that students may assist other students at the University with mastery of essential skills, factual information, and subject conceptualization necessary to academic success. The program is called, "GUTS/HASH" - The Greater University Tutoring Service merged with Help At Student Housing - and it has been in operation at UW-Madison since September 1974.

The program is based on three notions, 1) that undergraduates are capable of sharing a great amount of educationally vital information with other undergraduates, 2) that teachers and professors are not the only resources available to "transmit knowledge," and 3) various modes and environments are necessary for complete learning. It also assumes that the peer tutor gains at least as much from the volunteer experience of being a "helper" as does the tutee. The areas of tutor development (social skills, communication, listening, personal growth and commitment) are skills that are afforded little opportunity for maturation in the traditional lecture system.

The peer perspective has advantages that complement the professional perspective, clearly define its relative strengths, and are compatible with the missions of higher education. When a program is developed in cooperation with the professional instructional faculty and support services of a university community, it has the potential to support and enhance the undergraduate experience in ways not previously conceived. In a time of fiscal austerity and a changing enrollment population, the GUTS/HASH approach to peer education offers a creative and economical system that will enable higher education to meet recognized needs.

Basic Elements of the Model

Services offered to tutees are defined through four major programs,

1) Close Contact tutoring, 2) Open Hours lounges, 3) Study Groups and 4) Study Skills workshops. Close Contact is long-term individualized assistance, arranged at time and location of mutual convenience between tutor and tutee. All requests in this program are facilitated by our student office staff (three work/study students, each employed 6 to 12 hours per week). Presently nearly 500 students each semester receive Close Contact tutoring in all subject areas.

Open Hours lounges offer short-term individualized assistance on math and chemistry (80%). Tutoring is offered by regularly scheduled volunteer tutors, five evenings and two days each week, who offer assistance to students who "drop in" for help. Lounges are located in libraries and dormitories, where students work, study and develop questions.

Study Groups are designed for students who are interested in meeting regularly, but who do not require individualized tutoring. Study Groups form in all subject areas, including those that do not have corresponding courses (e.g. Organic Agriculture), and take three forms: A) Independent--without any tutorial support, B) Tutor-Centered--with the support of a tutor who assumes a "teacher role" and determines the direction of the group; C) Student-Centered--students work together to solve problems and to teach each other, with the support of a tutor who facilitates, guides, and aids as needed. Our program has evolved to more easily accommodate students in Study Groups in recent months. The "Independent" and "Student-Centered"

formats appear to have the greatest potential of freeing students to seek and learn in newly defined directions outside of the traditional scope of the university in the future.

Study Skills workshops are generally one-time "sensitizing" workshops offered by graduate students in education. The purpose is to explain basic study skills concepts, such as SQ3R, and to help students identify personal needs for further professional assistance. Students needing more in-depth work in this area are referred to the appropriate support services on campus.

Beyond the service model of GUTS/HASH, other elements are important in its success and applicability. A paid director coordinates the voluntary efforts of the tutors and provides professional accountability for the program. The director is expected to recruit and coordinate tutors, supervise a student staff of work/study (paid) and volunteer employees, facilitate a seminar on "Peer Education in the University Community" for tutors who wish to further study peer education and earn course credit for their work, work with a student/faculty board of advisors, recruit and advise a student programming committee, and serve as liason with the university community. However, related aspects of student control, such as representation on all programming/policy committees and student financial control of the program have contributed greatly to the success and flexibility of the GUTS/HASH approach.

A final element of the program that contributes to its success is its

perception of the volunteer. The volunteer commitment is viewed as sacred, the foundation of the program. Major energies are geared toward recruiting, training and supporting volunteers. Most tutorial services are defined as "service organizations" dedicated to tutee progress. This program serves the tutors as well, and respects their commitment to the program. Tutees learn to utilize the tutor fairly; the tutor seeks the tutee's "decreasing dependence" upon the tutoring relationship. There is great focus on the process of learning, toward the growing self-esteem of both tutor and tutee, and toward their mutual benefit. This philosophy is the cornerstone of the program.

Impact of the Program

Since HASH opened in 1974 and GUTS followed in 1976, the level of student involvement has steadily grown. If there is a real danger to the future of the program, it lies in the sheer numbers that need to be served. There is need to maintain channels for close, personalized communication and support among the staff and the tutees. Such communication is essential and priority is currently being given to developing new structures to insure its growth and development. To this end, a Study Area Consortia of tutors of similar interest areas has been organized which provides an opportunity for small group interaction and idea-generation. The program newsletter, "GUT Reactions," is being expanded to deal with broader issues at the university.

Currently, the total cost for the program is under $15,000 a year, including

office space donated by the Wisconsin Union and University Residence Halls. The usage levels and testimonials of tutors and tutees demonstrate the program's effectiveness.

In March, 1979, the Peer Education Seminar of the GUTS/HASH programs, with the support of Professor Ken Dulin, surveyed the Close Contact tutoring population for the Fall, 1978, semester. This study was to seek out the educational impact of tutoring upon tutor and tutee using a questionnaire defining thirty-three areas of potential impact in terms of such variables as time involved, age, sex, class, GPA and role.

Of 400 questionees surveyed, 81 tutees and 91 tutors responded. A survey of a random sample of those who had not responded indicated either a) low involvement with the program, or b) similar patterns of responses. Although a number of highly significant correlations were found among variables, the research does not warrant, at this stage, substantial conclusions to be inferred. However, responses did indicate certain trends that require further examination in more controlled settings. We feel that these respondents were fairly representative of the total Close Contact population.

Tutors indicated significant improvement in several areas. The typical tutor had been involved in 20-30 hours of tutoring spanning one or two semesters. The typical tutor tended to be upperclass (36% seniors, 22% juniors, 16% grads) with a mean GPA of 3.46. Tutors indicated that,

as a result of tutoring, they felt improvement in verbal communication (75%) and listening ability (62%), subject conceptualization (76%) and subject application (62%), and self-confidence (74%). Most indicated an improved "sense of community" (58%) and improved "tolerance for individual differences" (51%).

Typically, tutees had been involved for one semester with the program, on average for a total of fifteen tutorial hours through nine weeks. Tutees tended to be slightly younger than tutors (43% freshmen, 24% sophomores, 22% juniors), although nearly one of four was over twenty-one. Another characteristic of tutees worth noting was their being relatively "new to campus"; 91% were in their first three semesters at UW-Madison while receiving assistance. This indicates that perhaps a great need of tutees is to "get adjusted" and to learn the "ropes" of the university. This is reflected in their other feedback to the program as well.

Tutees indicated great change attributable to tutoring in several areas, despite the relatively short time period involved. Since many tutees were involved in math tutoring, it was reassuring to note that they felt that math calculating (55%) and problem-solving abilities (64%) were enhanced. Their ability to cope with university life improved (53%) as well as self-confidence (55%). But the key improvements came in content: there was great apparent impact on the tutee's ability to conceptualize the subject matter (81% improved, 30% improved greatly) and the ability to apply the subject

matter (88.5% improved, 25% greatly). Finally, and somewhat surprisingly, many attributed tutoring with improving grades in tutored courses (64%).

These results, coupled with ever-increasing respect for the program from faculty and administration, indicate a great potential for voluntary peer tutoring as an educational approach. Even though not yet "clinically" proven to be of value at this point on a college level, the results are consistent with other studies among younger children. (Cf. Vernon Allen, Children Teaching Children). It is clear that students feel that it is helpful, and they continue to support it with thousands of hours of voluntary energy while carrying full credit loads and part-time jobs.

This program presents a model of voluntary peer education that offers personalized educational assistance to students at a large and often impersonal multiversity. GUTS/HASH goes outside the lecture system and the limits it imposes to support student development in a flexible, non-graded environment that yelds fine results. It is an economical approach to learning that seeks to develop currently untapped resources in a university community.

The GUTS/HASH Model has potential for other universities of any size having the vision and creativity necessary to implement it. We, as educators, must fee ourselves of the notion that only "teachers" can teach. We must remember that our mission is to help students learn, and that it is our responsibility to encourage

the development of alternative modes of learning.

Self-Image: An Important Concept for Study Skills *Professionals*

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ABSTRACT

The notion of self-image has been found to be an important concept concerning student development. This concept is particularly important during primary socialization. Study skills professionals need to be aware of the importance of self-image for their clients. Often underdeveloped students have formed a low opinion of themselves and their abilities. This is a serious handicap that needs attention along with cognitive skills development (reading comprehension, rate and flexibility).

This paper will examine the notion of self-image as a construct and explain its theoretical nature and background. An attempt is made to relate this theoretical construct to the research evidence and emphasize the significance for study skills professionals.

Self-image is a concept that has been used by anthropologists, educators, psychologists and sociologists to help explain behavior. Combs and Snygg (1959) said that all behavior, without exception, is dependent upon the individual's personal frame of reference. The maintenance of self-concept is thought to be a central

part of human personality (Sullivan, 1953) Lewin (1935) viewed self-image as a central and relatively permanent organization that gives consistency to the entire personality. Self can be defined as a complex and dynamic system of beliefs which an individual holds true about himself (Kinch, 1963 and Purkey, 1970). One of the single most important assumptions of the modern theories about self is that the maintenance and enhancement of the perceived self is the motive behind all behavior (Snygg and Combs, 1949; Rogers, 1951; Combs and Snygg, 1959 and Purkey, 1970). "The most important ideas which affect people's behavior are those ideas they have about themselves" (Combs, 1973, p. 212). When applied to a specific academic situation, a relevant aspect of self-concept is the person's perception of his own ability to learn accepted types of school behavior (Brookover, Paterson and Thomas, 1964).

There are numerous references to the importance of self-image throughout the literature of mankind. Eric Hoffer (1952), a most perceptive social critic and philosopher, said that "where self-confidence and self-esteem seem unattainable the emerging individual becomes a highly explosive entity" (p. 9). R.D. Laing, the controversial psychiatrist, stresses the sociocultural factors in our complex society that inhibit the natural development of self (Samuels, 1977). Laing said that "by the time a new human being is 15 or so, we are left with a being like ourselves, a half-crazed creature, more or less adjusted to a mad world. This is normality" (Laing, 1967, p. 58).

DESCRIPTION

During the past few decades researchers have attempted to define the concept of self scientifically in order to separate it from its metaphysical base (Samuels, 1977). There are numerous terms used to help explain the concept of self-image. Some of these terms are: self-concept, self-esteem, self-love, self-ideal, self-estimate, self-conception, self-sufficient, self-confidence, self-insight, self-characteristics, self-evaluation, self-perception, self-picture, self-realization, self-respect, self-regard, self-feelings, self-acceptance, self-value, self-enhancement, ego-enhancement, ego-strength, ego-identity, ego-ideal and internal control. Freud gave attention to self with the concept of ego development and functioning (Purkey, 1970). Freudians and neo-Freudians generally hesitate to give the concept of self central importance in their theoretical formulations (Munroe, 1955 and Purkey, 1970). As a theoretical construct self-image may be quite difficult to identify and explain and even more difficult to translate into measurable empirical values. The term represents a notion about human behavior that has been observed repeatedly, but it is difficult to measure. Language can never be precise in the sense that it possesses complete objective meaning (Denton, 1970).

During the first 30 years of this century Cooley (1912) and Mead (1934) were writing about the theoretical nature of self. This interest by Cooley and Mead came at a time when the behavioristic psychologists gave scant attention to the concept of self (Purkey, 1970). The

behaviorists had considerable influence between 1920 and the 1940's in this country. Cooley thought that sense of self arises partly from experience, and partly from imagining other's conceptions of oneself. He stressed that a person tends to accept a particular view of self based on the views of those he admires. This idea developed into the theory of reference groups (Douglas, 1973). Self is seen as what Cooley called a looking-glass self--the result of interactions with others who provide meaning of self through their responses. Cooley's theory of self stressed early child development. "In Cooley's theory, how a mother perceives and treats her child would result in a favorable or unfavorable self-concept" (Samuels, 1977, p. 47).

Mead thought that self is created by a person's making a picture of himself through role taking--one considers intended conduct from the standpoint of those with whom one is situationally involved. Mead made the point that groups to which an individual belong serve as significant frames of reference. The concept of self was a major part of Mead's theoretical writing, and he argued that personality was determined by social-psychological factors (Douglas, 1973). William James has been given credit for initiating the social-psychological emphasis given to self-concept (James, 1893 and Samuels, 1977). His chapter on "The Consciousness of Self," was the longest in the two volumes, Principles of Psychology (1890). James theorized that there must be several social selves, and the so-called social me grows out of the recognition received from others (Samuels, 1977). The important dimensions of self-concept include:

body self, cognitive self and self-esteem (which is the evaluative aspect of the self-concept). We put a value on our bodies, our academic ability and our selves in roles such as student, friend, son or daughter (Samuels, 1977).

Adler (1927), Horney (1937), Fromm (1939), Rogers (1951), Sullivan (1953), Combs and Snygg (1959), Allport (1961) and May (1969) have written on the importance of self-concept from various perspectives. Recently Rollo May (1969) has explained the existentialist concern that individuals need to develop a sense of personal identity and to build meaningful links with the world (Samuels, 1977). May (1972) said:

> The confidence that one has worth is normally picked up first from attitudes of a mother or mother-surrogate toward the infant, and is then cultivated in the family by loyalty to the infant. As the child grows this initial feeling is reinforced by persons outside the family in their appreciation for him and his potentialities. Later, the mature human being seems to keep within his memories, to refer to in difficult times, the images of those people who have believed in him. When I was in college I found the experience of having some adult believing in me crucially important; and at times thereafter in my life when I was faced with fateful decisions, I found myself casting about to fasten upon one of these persons (p. 139).

The importance of early child rearing practices should not be overlooked when attempting to explain the development of

self-image. The rapid and significant development of self-image in the early years of childhood is widely accepted. "It is generally acknowledged that stability of the concept of self begins early in life" (Samuels, 1977, p. 63). The family may be considered the psychic agency of society (Fromm, 1939). Other agencies in American society that help to socialize children are: the peer group, mass media and the educational system. "Each provides the child with a different set of abilities and contact with each may have a profound effect on how the child develops and locates himself within society" (Douglas, 1973, p. 193). The time-worn cliche "as the twig is bent, so grows the tree" has a special significance regarding a person's self-image (Mussen, 1963). This point needs to be understood by reading and study skills persons who are attempting to reverse fixed patterns of behavior. Some thought given to the difficult task of promoting self-image may be helpful. It may also help to understand why students come to view themselves as less than able. "A middle-aged, middle-class, white, female schoolteacher must work hard to understand the perceptual world of a black youngster from the ghetto" (Purkey, 1970, p.10).

Major development of one's self-image occurs in the early years within the context of the family and particularly with the mother. Samuels (1977) said "specific child-rearing practices seem less important than parental attitudes toward themselves and their children" (p. 17). How a mother perceives and treats her child results in a favorable or unfavorable self-concept. A favorable self-concept helps one relate to the environment. It

has been observed".... that our attitudes toward others parallel our attitudes toward ourselves and that a basic love for ourselves is necessary if we are to love others...." (May, 1972, p. 138). "Hatred turned against oneself becomes inseparable from hatred directed against others" (Fromm, 1939, p. 515). Rogers (1951) found that people with high self-regard tend to be relatively accepting of others. It is quite probable that persons with a poor self-image are not able to help develop the self-image of those in their care. This observation should be meaningful for parents as well as teachers.

RESEARCH

Since 1960 there has been a considerable amount of work done to investigate the relationship between self-image and academic achievement. "Over-all the research evidence clearly shows a persistent and significant relationship between the self-concept and academic achievement" (Purkey, 1970, p. 15). It is, however, difficult to measure self-image. Researchers are faced with the problem of definitional ambiguity. There are more than 200 self-concept measurement instruments available. A few of the better known self-report inventories of self-image include:

1) The Self-Esteem Inventory
2) The Bledso Self-Concept Scale
3) The Self-Appraisal Scale
4) The How-I-See-Myself-Scale
5) The Q-Sort Method
6) The Semantic Differential
7) The Tennessee Self-Concept Scale
8) The California Psychological Inventory (Purkey, 1970)

There is considerable research available to indicate that a good self-image is important for academic achievement. Using the case study method, Conklin in 1940 reported differences between academically successful gifted children and academically unsuccessful gifted children; the range in IQ being from 130 to 163. It was found that the unsuccessful children had histories of less desirable relations with their families and with their companions; they also suffered more from cruel and ineffectual punishments, thus the child might easily see himself as unloved and unlovable (Walsh, 1956). In 1941 Lewis reported on the personalities, interests and home backgrounds of gifted children of superior and inferior academic achievement. In his study were 1,078 students of superior academic achievement and 756 students of inferior academic achievement from 36 states. Lewis (1941) found that, on the basis of teachers' judgments, the groups differed significantly on dependability, originality, self-reliance and investigativeness (Walsh, 1956). The difference was in favor or the superior academic achievement group. This superior group was credited with possessing more desirable personality traits, interests that are intellectual in nature, and superior home backgrounds. Brim (1954) found that students with high self-estimates of intelligence had higher grade-point averages than students of equal measured intelligence, but lower self-estimates of intelligence. Slocum (1956) found family background, especially parental interest in and aspirations for the student to be influential in withdrawal and persistence in college. Brookover at Michigan State University conducted some interesting

research in the early 1960's on self-concept. He found that self-concept of ability functions independent of measured intelligence in predicting school achievement, and a student's self-concept of ability is positively related to the image he perceives significant others such as parents, teachers and peers hold of him (Brookover, Paterson and Thomas, (1962). Brookover demonstrated that role expectations and self-concepts of ability are significant factors in influencing students' academic performance (Brookover, Le Pere, Hamachek, Thomas and Erickson, 1965). Among persons of equivalent measured intelligence, those with the higher self-estimate will usually outperform those with the lower estimate. The student who thinks he is not very intelligent may participate less in class discussions and may be inclined to give up sooner when working on difficult problems. "If this is the case, others may respond to him as if he were less bright than he is in fact, and this might result in a lower grade. This interpretation suggests the possibility of a relationship between the self-image and achievement motivation" (Lavin, 1965, p. 93). Research studies indicate that a positive self-image is associated with higher performance. There is some conflicting evidence; however, most students with a high level of academic achievement have better self-images than students with relatively low academic achievement levels. Students with learning difficulties tend to see themselves as less adequate than students who are making satisfactory progress (Walsh, 1956).

A favorable self-regard is also thought to be a necessary condition for

positive mental health (Rogers, 1951). Students with academic deficiencies often display signs of poor mental health. Research indicates underachieving students to be insecure, dependent, immature and unable to form warm interpersonal relationships (Powell and Journard, 1963). Underachieving students are self-deprecatory, lack a clear system of goals and values, are vulnerable to disparagement by others, have immature relations with parents, lack insight into their problems, have feelings of inadequacy and are likely to be anxious and depressed (Taylor, 1964; Kornrich, 1965 and Maxwell, 1971).

Reading has been found to be associated with a positive self-concept in many recent studies where race, sex and social class were controlled. Significant correlations between self-concept and reading achievement held with these variables controlled (Samuels, 1977). Poor reading ability is closely bound up with negative feelings of personal worth (Purkey, 1970). There is a positive relationship between self-concept and achievement, self-concept and peer relationships, self-concept and curiosity and a negative relationship between self-concept and anxiety. Students having problems in the academic environment will need remedial treatments with strategies designed to improve self-image. Many developmental skills programs have consciously and deliberately included counseling courses and support services to assist in the development of a positive self-image (Grant and Hoeber, 1978). Usually those students that progress in a study skills or remedial reading course also improve their self-image. Students can make accomplishments and be rewarded

with the knowledge that improvement was made.

Working at a task and being successful helps to improve self-concept. It has been found that a greater self-esteem is a benefit from attending college (Katz, 1976). Having a profession or skill provides students with tools to make their way in the world. "Faith, enthusiasm, and passionate intensity in general are substitutes for the self-confidence born of experience and the possession of skill. Where there is the necessary skill to move mountains there is no need for the faith that moves mountains" (Hoffer, 1952, p. 4).

CONCLUSION

Teachers in developmental classes need to be sensitive to the fact that their students may have a negative self-image that can be an additional handicap. Self-concept of ability is a functionally limiting factor in school achievement (Brookover, Paterson and Thomas, 1962). Teaching cognitive skills may help students to improve upon their self-image, but this effort needs to be accomplished in a supportive atmosphere. Six factors have been identified as important in creating an atmosphere supportive of favorable self-images. These are: challenge, freedom, respect, warmth, control and success (Purkey, 1970). Psychological and intellectual growth are closely related, and teachers should understand that their efforts need to be supportive as well as structured (Katz, 1976). It has been found that there were significantly positive self-concepts in students whose teachers were calm, acceptant,

supportive and facilitative. Teachers that are dominating, threatening, grim, and sarcastic produce negative self-feelings (Spaulding, 1954). Security is fostered by teachers who are secure themselves (Samuels, 1977). It has been said that teachers' attitudes toward themselves may be more important than their techniques, practices or materials (Combs, et al., 1969). This most interesting statement needs to be examined in some detail, and teachers at all levels should understand the merits of this observation. The implication is that people who have good self-images can promote positive self-images in others. This is a healthy process for our society. There is a need to look at truth from each person's perspective; reality lies in the person's present conscious experience of an event (May, 1969 and Samuels, 1977).

Those who are working with various types of students need to be aware of the significance of self-image and the special problem it presents in an academic setting. For students who have come to see themselves as scholastic failures, the process of reversing this image is difficult. It requires considerable time with professional educators.

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Frameworks for Examining Comprehension and Discourse: An Overview

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ABSTRACT

Recent developments in reading research focus on reading as a process, with emphasis on the interaction between reader and text. Accordingly, methods are sought which will facilitate examination of both reader cognition and text features. Two areas which promise to have significant impact on both research and instruction are schema theory and discourse analysis. These are discussed within a framework of implications for college level reading.

Recent developments in cognitive psychology, linguistics, psycholinguistics, and information theory have suggested a variety of alternative approaches to the analysis of the processing and comprehension of connected discourse. These approaches, and the theoretical considerations underlying them, promise to yield new insights into the question of how people learn from reading prose materials. Studies in this area focus upon issues in comprehension, cognition and memory, and the interrelationships

among these mental operations.

The purpose of this paper is to provide the reader with a very basic overview of some of the main concepts now being developed in this area. While there is not a great deal of direct application of these concepts to college level reading instruction at the present time, the ideas we discuss can be expected to produce significant impact during the next few years.

These developments may be broadly divided into two areas of emphasis. One of the areas focuses on the cognitive operations engaged in by the reader. The second focuses on structural characteristics of the text itself.

I. Schema theory: Emphasis on the Reader's Role

Concept of a schema

Recently several researchers have focused on the notion of cognitive schema as a useful concept around which to organize hypotheses of comprehension and memory. The term is used in much the same way that Kant employed it in the eighteenth century and Piaget has developed it in his writings. A schema is a pattern of a concept, object or event--the basic outline which determines how that entity will be realized in concrete terms. It is an abstract or generic description applicable to whatever entity is subject to comprehension, composed of constituent elements, each of which is a "slot" or "placeholder" to be filled in by particular information (Anderson, Pichert, Goetz, Schallert, Steven & Trollip, 1976;

Anderson, Reynolds, Schallert, & Goetz, 1976).

Each individual operates with his own set of schemata, developed from experience and learning. A schema describes the structure of what one knows or believes that he knows. What this notion says, in effect, is that we apply acquired patterns of belief to information and interpret (or reject) it accordingly, although information can affect the pattern in turn. Rumelhart and Ortony (1976) have compared a schema to a play that is realized anew with each enactment. They also call schemata "data memory" (p. 101). These are not linguistic entities but more basic representations of knowledge which are expressed in language. "The purpose of a schema," they write, "is that of a cognitive template against which new inputs can be matched and in terms of which they can be comprehended" (p. 51).

Components of schema theory

The basic notion of a schema as a pattern of expectations to be applied to incoming information is simple enough and seems intuitively sound. What is interesting is the way in which schema theorists have developed the concept into a model of cognitive activity subject to experimental testing. Among the essential constituents of this concept (itself an exemplar of a high level schema with several embedded schemata or sub-concepts) are the notions of schema states, schema variables, instantiation, activation, episodic and semantic memory, and high and low integrity processing. Each of these terms is described briefly below in

an effort to show how schema theory has been elaborated into a rationalization of the thinking process relevant to the issue of school learning.

State of Schema: This is the sub-set of information related to a particular schema (or set of interacting schemata) on a particular occasion. Examples are particular details from a story, general impressions, summary statements, and rules for drawing inferences (Spiro, 1976). This schema state can be altered over time, especially when new information is introduced. Thus, a reader who invokes a particular schema state in response to a report of a dangerous crime suspect at large will have the state altered by subsequent information regarding this suspect's innocence. He may even recall the original information differently: instead of recalling that a dangerous person was being pursued, which is what he originally believed, he will recall that someone was erroneously identified as dangerous. This kind of alteration of memory, crucial to reconstructive theory, has been experimentally investigated (Spiro, 1975, 1976).

Schema Variables: As stated, particular values are assigned to the constituents of a schema. These "slots" or "placeholders" are the variables within the pattern which admit appropriate information. The values which can be assigned to variables are constrained by context (construed in the broadest sense to include any environmental factor). Yet the constraints are flexible (Rummelhart & Ortony, 1975). As an example, a schema for the concept of animal may include the

variables of living, free-moving and reproducing, to be filled in by particular values or realizations of each of these properties. Yet a stuffed owl is also considered an animal although it is dead, immobile and cannot be induced to lay an egg. Or a man may be called an animal not in the zoological sense but because of certain undesirable behaviors, in which case the schema for animal has been temporarily altered to include only certain negative values. Understanding such instances, it seems evident, requires the evocation of a context that goes well beyond the language employed.

Instantiation: When values are assigned, the schema or schema constituents are said to be instantiated. Applying this concept to words, Anderson, Pichert, Goetz, Schallert, Stevens and Trollip (1976) point out that context and processing give a word a particular meaning each time it is used, which is to say that the word is instantiated. Instantiation is an inferential process based on probabilities of context under the influence of governing schemata. In this way, situation, text and reader collude in the assignment of meaning. For example, the main verb in the sentence, "the man bit off more than he could chew," would be instantiated differently depending on whether it was a pie-eating context or a case of polygamy.

Activation: Ortony (1977) describes this idea to account for what happens when a concept is processed. To understand it one must first accept the notion of a network organization of knowledge in which particular concepts, or perhaps better the schemata of particular concepts, represent

"nodes" or significant junctions. During the processing of a concept, activation is spread out through the network with decreasing intensity, probably reaching some other concepts and providing access to their internal schemata too. This notion may be exemplified in the common experience of thought association. The phrase "cholesterol level", for example, may arouse a network of implications related to the processor's age, weight, circulatory problems, awareness of current health fads, and so on. The subset of concepts or nodes activated constitutes the "final activated sub-graph", which is the basis of inference used in comprehension. That is, an associationist process is proposed to account for the experience of one concept suggesting another. This image of a knowledge network with certain important junctions is limited in some respects but does help to characterize the assumed interrelatedness of all stored knowledge.

Episodic, Semantic, and Schematic Memory: Spiro (1977) proposes three kinds of levels of memory, each more durable than the last. Least durable is surface memory, or memory for the exact construction of any input (say a sentence) as it was presented. Next is semantic memory, a relatively stable store of meanings, but these too can be lost or altered over time. Last to go, generally, is the representation of the "final activated subgraph" of concepts -- the set of schemata called up during activation.

As an example, one might read the sentence, "It's a tough and scary business, but it's also loaded with high spirits and lively people and applause and a chance

to say to the world, 'Hey! Here I am.'" Assume that the reader is aware of the speaker's life as a television actor and furthermore that he dislikes the speaker: this is context in which he reads the statement. The surface representation of the sentence will probably fade as soon as the reader has stopped looking at it. He may be able to paraphrase the remark, however something like this: "He says that he gets scared but has fun, especially when he gets a lot of recognition, because he wants the world to see him." After an interval of time the reconstruction may be something like this: "He made an egotistical statement typical of actors." From the last, we might assume that at least two concepts were activated during the reader's processing of the sentence--the egotism of a person who would make such a statement and the nature of a typical actor's statements. These remained after the surface and semantic representations of the statement themselves had faded away.

This example also serves to distinguish between episodic and semantic memory. In the case described, the reader remembered an episode rather than a meaning -- the episode of a disliked person making a fatuous statement. Had the reader been a devoted fan of the actor, perhaps he might have internalized the meaning of the statement (e.g., believed it) rather than the episode of reading it. In that case, he would have, as part of his belief system, the information that television acting is frightening but pleasurable, etc. Semantic memory, according to Spiro (1977), represents what a person believes to be true, while episodic memory to semantic memory if it

can stand alone, as, for example, in the case of a highly credible speaker.

High/Low Integrity Processing: This distinction (Spiro, 1976) is useful in looking at the different strategies a person might employ in trying to remember something. Suppose, for example, he is a participant in a memory experiment and wants to do well. In this case, the item he is trying to remember will have "high integrity" and he will isolate it from his other knowledge in an effort toward verbatim recall (or maintenance of surface memory). Usually, the item will have no value for him other than to demonstrate his ability to recall and will not be retained after the completion of the task (Anderson, 1977). Now suppose that this person is reading an article on a subject of interest. In this case, his objective is to update his own knowledge on this subject, and the material itself is of less importance than its relationship to what he knows and/or wants to know. The latter is called "low integrity processing" and involves maximum interaction of new information with existing schemata. One might say that the material has less integrity than the knowledge system to which it is being related. Thus, in high integrity processing the cognitive processes are subordinated to the material, and in low integrity processing, the material is subordinated to the individual's need for relevant and useful knowledge.

Spiro (1976) considers low integrity processing to be the normal condition and high integrity processing a special case. In low integrity processing, schema states are altered by a variety of factors,

including prior linguistic context, context of situation, speaker-hearer (writer-reader) relationships, interests, attitudes, task demands, linguistic cues, and kind of discourse. In high integrity processing, on the other hand, nothing much happens because the normal cognitive processes are "frozen": in an effort to maintain the integrity of the input.

The Nature of Learning

Learning, according to schema theory, consists of updating knowledge, that is, modifying existing schemata and creating new ones (Anderson, 1977). This process operates most smoothly when the learner is able to subordinate incoming information to existing knowledge structures and allow interaction to take place. However, when the integrity of the text takes precedence over the conceptualizing activity of the learner, and he is directed to maintain the input in as unaltered a form as possible, he will be able to do so only by isolating the processing task from his normal intellectual functioning. This freezing of the normal cognitive processes is likely to occur in memory experiments and some classroom learning tasks, where the concern is with accuracy of text recall (Anderson, 1977; Spiro, 1975). According to schema theory, such information would have little functional importance for the learner in his concern for updating his own knowledge and so would result in little long-term learning.

The indictment of traditional formal education procedures implicit in this interpretation of schema theory needs to be examined with caution, of course.

Those charged with the responsibility of helping students cope with academic tasks cannot expect to change the nature of the tasks themselves, even assuming that one could derive a sound curriculum theory from a limited set of observations on the nature of memory and its relationship to long term learning. We must keep in mind, moreover, that the approach described here is a theory, not a thoroughly validated set of conclusions. Nevertheless, one can use the insights provided by schema theory in the planning of approaches to helping students deal with college texts.

Two fundamental principles concerning learning from verbal sources that can be drawn from schema theory are these:

1. New information must always be related to what the learner already knows, and

2. the acquisition of knowledge through reading requires active, structuring operations upon material by the reader, who must in some way engage his schemata with those of the writer.

These principles give new depth to the concepts of previewing, purpose-setting and question posing that are frequently recommended as study techniques. Also, the value of rephrasing and restructuring information is emphasized. Comprehension is seen as something more than just understanding; "processing" may be a better term. Long range learning, by which we mean the cognitive development that takes place over time, is characterized by the ability to express and apply

knowledge and concepts in varying situations. Therefore, the learner should concentrate on processing information into the complex network of knowledge he already possesses.

When information is unfamiliar, this processing may require the employment of conscious strategies for setting up meaningful frameworks and going beyond the language of the text to derive meaning in one's own terms. What this probably means in terms of learning assistance programs is that primary emphasis should be placed on activities which encourage students to abstract the structure of meaning from a text, to rephrase concepts in their own words and discuss them in their own frameworks of meaning, to relate specific items of information to general concepts, to reduce large segments of information to cues, and to practice reconstruction of information from these cues.

The instructor occupies a kind of mediating position between the reader and the text. If reading can be viewed as an interaction between the cognitive schemata of the reader and those of the text writer, then logically it is the instructor's role to be aware of the text features which represent the writer's schemata and assist the reader in coming to terms with them. The next part of this discussion, therefore, will deal with ways of examining the semantic or meaning structures of text materials.

II. DISCOURSE ANALYSIS: Focus on Textual Features

Another important area of investigation for reading researchers has focused

on the structure of the text. This area, most often known as discourse analysis, seeks to provide an objective description of connected discourse and to delineate any linguistic constants which may exist across broader segments of a text.

Broadly speaking, contemporary discourse analytic methodologies have focused on the semantic aspects of text, as opposed to more conventional approaches which have emphasized surface structure forms, especially syntax (Harris, 1955).

The instructional implications of new trends in semantic discourse analysis are many and varied, but they seem to converge most readily in the area of readability. Researchers and practitioners alike have been aware for several years that the conventional assessments of text readability, such as the Fry Graph and the Dale-Chall formula, have been inadequate at best and potentially misleading. Discourse analysis may provide a theoretically-sound technique for assessing readability and comprehensibility on the basis of semantic and stylistic features.

It seems worthwhile, then, to briefly review these new techniques and to provide at least a cursory introduction to the specific methodologies. Unfortunately, considerable confusion has surrounded and continues to surround the entire area of discourse analysis. Much of this confusion may stem from the wide variety of terms subsumed by the general technique. For example, discourse analysis is known variously as textgrammitik, text analysis, discourse grammar, and text grammar.

While each of these terms applies to a specific discourse analytic technique or taxonomy, relatively few clear cut theoretical differences emerge from an analysis of the terminology. Indeed, some writers have gone so far as to suggest that discourse analysis is no longer a meaningful term. (Hendricks, 1972).

Selected Methods

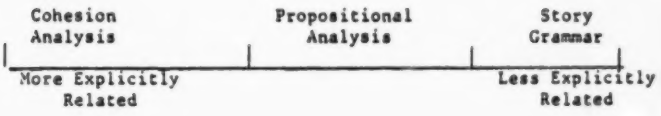
For purposes of clarification, the suggestion made here is that a few well-known but highly individual forms of discourse analysis be considered as representative of the wide variety of available techniques. The techniques chosen for consideration here are (1) semantic cohesion analysis (Halliday and Hassan, 1976), (2) semantic propositional analysis (Kintsch, 1975; Kintsch and van Dijk, 1977), and (3) story grammar (Stein, 1976 and 1978).

Before considering each of these systems separately, it seems worthwhile to consider the manner in which they are related. One such structure has recently been proposed (Rhodes, 1978) in which the methods are considered on the basis of their degree of relation to the original surface structure of the text. When viewed from this perspective, it is possible to place the methods in a logical order on the continuum. This motion is graphically represented in Figure 1. For example, since cohesion analysis is most closely associated with the surface structure it would be placed at the far left end of the proposed continuum, whereas story grammar - since it rarely if ever deals with the actual linguistic structures of the text - is placed at the

far right. Propositional analysis, at least the type suggested in the work of Kintsch and van Dijk, lies somewhere between the two other techniques. As noted above, and at this stage this point cannot be over-emphasized, all three analytic modes are essentially semantic techniques. But their individual associations with the surface structures do vary considerably.

Figure 1

CONTINUUM: RELATIONSHIP OF TECHNIQUE TO SURFACE STRUCTURE



Each of these analytic modes does fulfill a unique role in the analysis of a text. This function appears to be directly related to the relative position of the technique on the proposed continuum.

Despite their basic similarities as modes of semantic discourse analysis, each of these techniques represents a disparate point-of-view regarding significant aspects of language processing and comprehension. In short, each reflects a different intellectual tradition and a different perspective on what is important in connected discourse.

The Roots of Discourse Analysis

It seems possible to trace the roots of discourse analysis to the classical Greek concern with the form of a text,

especially oratory, as exemplified by the sophists. This tradition persisted throughout much of Western intellectual history, represented in the conventional Occidental concern with rhetoric, and oratory. More specifically, however, the methodological roots of discourse analysis apparently stem from the philosophical and linguistic concerns of what might be termed the "structuralist" school of thought, exemplified by such scholars as Ferdinand de Saussure (1959), Jean Piaget (1970), and Claude Levin-Strauss (1963).

This structural point-of-view is reflected in several ways among the modes of discourse analysis under consideration here. First, there is the paramount importance of the text as a whole and meaning-based semantic unit. Second, there is the attempt to specify the relationships among the various components of the text. Finally, there is the concern for defining the rules governing the relations of the various segments of the text to the discourse as a whole. Each of these aspects of the methods reflects an important consideration from the structuralistic perspective.

Perhaps more importantly, however, this commonality would help to explain how three widely divergent modes of analysis can be grouped under the general heading of "discourse analysis". As noted above, each ot these methods represents a different discipline or tradition: cohesion analysis stems from a literary or rhetorical tradition, propositional analysis emanates from a straight-forward linguistic tradition, and story grammar grows almost directly out of the concerns of anthro-

pology, especially folkloristics. Yet, as outlined above, all three share fundamentally important common goals and concerns.

Cohesion Analysis

The semantic cohesion schema proposed by Halliday and Hassan (1976), for example, stems from a literary/rhetorical tradition in which stylistics is a basic concern. Halliday and Hassan are essentially interested in defining those attributes of connected discourse which differentiate a text from a non-text. They suggest that these attributes are separable into two intersecting areas: register and cohesion.

Register defines what might be termed the sociolinguistic aspect of a text. It is further refined into field, mode, and tenor in an attempt to fully describe the setting and affective environment in which the printed text occurs. At this time, register is a somewhat amorphus concept, one which becomes difficult if not impossible to operationalize in practice.

Cohesion, on the other hand, provides the analyst with a readily assimilable categorical analytic mode which is relatively easy to operationalize. The general assumption which seems to form the theoretical underpinnings of cohesion analysis is that the essential characteristic of a text - whatever that text may be - is that it is internally cohesive; e.g., that the text in some way "hangs together" as a structural-semantic unit.

The cohesion schema attempts to

codify those semantic structures which provide for this cohesion. Halliday and Hassan suggest that it is possible, using their taxonomy and coding system, to rigorously describe and quantify those features of a text which aid in establishing its cohesive quality.

The basic unit of cohesion is, according to this schema, the cohesive tie: a semantic relation between items which is crucial to the semantic interpretation of one of the items and, consequently, to the text.

Halliday and Hassan suggest a fairly elaborate coding method for detailing the kind and degree of cohesive ties in a text. They suggest that cohesive ties may be accorded to one of several categories: reference, substitution, ellipsis, conjunction, or lexical cohesion.

Note the following sentences:

(1) Wash and core six cooking apples.

(2) Put them in a fireproof dish.

There is a rather obvious cohesive tie between the two sentences. The tie is formed by the relation between "apples" in sentence (1) and "them" in sentence (2). Halliday and Hassan code this particular kind of cohesive tie as a reference with a distance of 0 because no sentences intervene between the presupposed and cohesive items (1976, p. 3).

This is an admittedly simple example of cohesion analysis, but it does serve to illustrate the method. It seems fair to suggest that we can learn a good deal

about the semantic structure of connected discourse by applying this technique and comparing it with reader performance criteria. As Halliday and Hassan note: "the concept of a tie makes it possible to analyze a text in terms of its cohesive properties, and give a systematic account of its pattern of texture" (1976, p.4).

Propositional Analysis

A second representative discourse analytic technique is that offered by Kintsch and Kintsch and van Dijk. Often called propositional analysis, this technique stems directly from the case grammars of Fillmore (1968, 1971) and Gruber (1969). Like cohesion analysis, the method is objective and semantic in nature: it attempts to analyze a text on the basis of "propositions" and their relations. Propositions, as considered here, represent conceptual semantic units which are formed around a predicate -- most frequently a verb or verb-related concept -- and constitute what might best be termed a basic unit of the text base.

Propositional analysis is perhaps too technical and time-consuming a topic to be dealt with in depth in this paper. Basically, however, the method attempts to analyze the text in terms of semantic content rather than linguistic form (Kintsch, 1977, p. 37). The propositions are stated in terms of "word concepts", frequently but not necessarily lexical items chosen directly from the text, which represent the underlying meaning of the arguments or elements of the propositions.

There are pitfalls in any system which attempts an exclusively semantic form of analysis, and propositional analysis is no exception. The results of research using the method thus far, however, have been fruitful and positive, especially when considered on the basis of - inevitably - reader performance criteria.

Consider the following sentence:

I unbolted the door and went out.

As an illustration of the technique, this sentence would be "propositionalized" as follows:

1. (UNBOLT, A : I, O : DOOR)

2. (GO, A : I, O : OUT)

3. (CONJ : AND, 1, 2)

For purposes of clarity, word concepts - as opposed to words - are stated in the propositions in capital letters. In the first proposition, the focus is on the relation expressed in the verb "unbolt". The other elements of the propositions, or "arguments", are noted only as they relate to the predicate. Thus, "I" is the "agent" of the unbolting while "door" is the "object". The key to the system is in the appropriate labeling of the "cases" (a la Fillmore) of the arguments of the proposition as agent, experiencer, object, instrument, etc. The third proposition expresses the relation of the two earlier propositions, which are embedded in the third. Thus the relation is noted to be a conjunction (CONJ) and the identical word found in the text is repeated in the proposition.

The "1" and the "2" in the third proposition indicate that the relation being expressed is that between the entire first and second propositions.

It seems clear that propositional analysis, while valuable, is necessarily a time-consuming operation, a feature attendant upon any technique which makes use of a minutiae, especially semantic minutiae which are frequently highly ambiguous in nature. Nevertheless, propositional analysis portends to be among the most highly influential techniques available for text analysis in the immediate future.

Story Grammar

The final discourse analytic technique to be discussed here is the story grammar, especially that developed by (Stein (1976, 1978). Story grammar would appear to enjoy the longest and most direct history among the techniques under consideration. Taking its basic notions from the work of Propp (1928) and Levi Strauss (1964), this technique attempts to define broader relations among broader segments of text than the two techniques previously discussed.

As noted above, the idea of a story grammar stems from an indepth analytic technique developed in cultural and structural anthropology. Both Propp and Levi-Strauss, for example, noted that certain features or characteristics of conventional myths and folk-tales seemed to extend across both languages and cultures. Propp went on to identify the story "functions" that made this possible,

while Levi-Strauss attempted to further refine and articulate the original system.

Story grammar assumes significance for reading instruction in what it tells researchers about the knowledge that readers bring to the reading act. Story grammars deal with essentially meta-linguistic notions which appear to be "universal" among specific genres of narrative prose. Whether these functions exist across expository prose has not yet been determined by researchers in the area, although several investigators are allegedly at work on an answer to the question.

The story grammar research suggests that readers, even very young readers, are aware of some of the structural characteristics of story-like material. Readers apparently infer certain expectations regarding the ways in which narrative structures are "put together", on the basis of their experiences with stories already encountered, whether aurally or in print.

It seems likely that this knowledge of reader expectations could be put to important use in the teaching of reading and study skills. Stein (1977), for example, suggests that most readers have a structural model of narrative material which includes aspects of story construction such as setting, goal-setting, initiation of experience, specific categories of attempts at resolution of conflict, etc.

These categories of story structure have developed from an investigation of conventional story functions as alluded

to above as they interact with reader's recall and retention - as well as prediction of the functions. The implications seem obvious and important. Mature readers may not benefit directly from this material for a considerable length of time, but the early results of research using the technique suggest that this area-like the two outlined above -- are worth investigating.

Together, schema theory and discourse analysis center attention on reading as an interaction between reader and text. This view, we believe, will lead to a deeper understanding of reading as a process involved in learning than approaches that focus on the products of reading only. The value of the cognitive approach lies in its emphasis on the experience and role of readers as they deal with the information-bearing properties of written discourse.

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Needed: Systematic Evaluation of College Remedial Reading Programs

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ABSTRACT

Are college reading programs failing to help unprepared, high-risk students? Are these programs financially justifiable in terms of benefit to the students they serve? The greater influx of high-risk students and increased sensitivity to matters of accountability combine to create increased pressure to develop thorough and valid evaluations of such programs. Currently, information and direction regarding reliable guidelines or models for such evaluations are not widely known or used.

In this presentation James M. Deem reviews the development of evaluation efforts and guidelines for developing such evaluation instruments offered by research. He discusses the Suchman model as a potentially valid and effective approach. His bibliography should prove useful to those actively planning program evaluations in this area.

Are college remedial reading (CRR) programs failing to help under-prepared high-risk students? Would these students do just as well without participating in such remedial programs?

With the influx of high-risk students into institutions of higher education, greater demands have been placed on the college basic skills programs "to be more accountable than traditional education programs" (Grant and Hoeber, 1978, p.34).

Basic skills program directors, however, have often been reluctant to conduct objective or detailed evaluations to determine the effects of a program, since a negative result may mean the elimination of such programs. Indeed, "there is strong evidence that many college administrators and state legislators look at evaluation as a means to legitimate the curtailment of such programs" (Bynum et al, 1972, p. 82). As a result of these problems, few evaluations are published; even these are often "limited in quantity and scope" (Bynum, p. 120) and do not address the issue of program modification, since change is seen as a threat to program continuation. Even those directors who may wish to evaluate their programs objectively cannot find an adequate evaluation model. Consequently, every basic skills program that is evaluated uses different--and often, inadequate--measures of effectiveness.

College remedial reading programs especially, as an important component of any basic skills curriculum, need to be objectively and fully evaluated. As Chaplin (1977) notes, during the 1960's such reading programs "were hurriedly instituted with little foresight and planning for their stability. They were simply insurance policies that protected the cherished high standards of academic excellence" (p. 3). Consequently, little has been done to bring about their evaluation in a systematic or realistic way. Further, of the existing evaluations, only a few have been published (Roueche and Kirk, 1973) or made available for study in the ERIC system (Losak, 1971; Schiavone, 1977).

College reading educators have wrestled with the issue of evaluation for the past twenty-five years. Eller (1956) and Colvin (1962) each called for the evaluation of college reading programs but did not specify any procedures for such evaluations. Summerfeld (1955), however, did propose five general steps for conducting evaluations of college reading programs. Nonetheless, he, as well as other educators of that time, based his evaluation procedures on a research model, in contrast to the current evaluation model.

Traditionally, the most common method of evaluating the effectiveness of college remedial reading programs has been based on the testing of one variable, usually the improved academic achievement or reading scores of program participants. However, as Guba (1972) states, "the use of laboratory research designs and techniques poses conditions that are simply inappropriate for the purposes for which one does an evaluation" (p. 257-258). First, such research studies rely upon randomly-selected experimental and control groups to produce statistically valid results. However, control groups and random selection are inconsistent with the philosophies of CRR programs and the needs of participating high-risk students. Second, a research study cannot reflect the effects of an entire program by the use of one or two variables, merely a controled portion of it. On the other hand, evaluations are done by setting up "conditions of invited interference from all factors that might ever influence a learning...transaction" (Guba, p. 257). The goal is less, not more, control.

Finally, research is rarely undertaken to produce change, merely to "search for new knowledge regardless of (its) value" (Suchman, 1967, p. 75). Evaluation assumes, necessarily, the need for change.

There are no solutions currently to the problems of evaluating CRR programs for high-risk students. However, my research in the field has indicated that three guidelines are necessary in conducting any such evaluation. First, appropriate variables which allow for maximum input must be selected. Second, the evaluation must cover not only the performance of the students in the program, but the entire program itself. Finally, the end result of the evaluation must be program improvement.

First, one must select comprehensive variables in conducting an evaluation of CRR programs. However, there is little in the existing literature to guide the CRR program evaluator. Maxwell (1971) proposed four variables in evaluating CRR programs: GPA, the limited use of standardized reading tests, local objectives, and attitude changes. Drexler and Pepper (1972) clearly favored the use of academic achievement but conceded that attrition, persistence, or "the work a student engages in after graduation" might also be used as measures of program effectiveness (p. 190). Emond (1976) suggested four longitudinal measures: persistence, semester-by-semester GPA, number of failures and course withdrawals, and attitude changes. Emond felt that persistence especially "has been overlooked as a major indicator of program success" (p. 23). Predgier (1965) wrote that persistence should receive more

attention as a criterion for success, for "ultimately, the student's success in college is judged not in terms of his GPA, but, rather, in terms of the educational program which he has completed" (p. 62). Whether any or all of these variables are appropriate for programs involving high-risk students, or whether all of the necessary variables have been identified, one cannot say.

Second, one must evaluate the entire program. In the past, program evaluation has too often been confused with student evaluation (Bynum). Although one can evaluate certain aspects of a program by evaluating the students and their performance, problems can result from such an emphasis. If the student does not succeed in the program, oftentimes "the student is viewed as the failure rather than the program" (Grant and Hoeber, p. 31). Moreover, little attention is paid to the processes or methods of the program itself. For example, Schiavone (1977) judged the effectiveness of a remedial reading program at Manhattan Community College by studying the student pass-rate for the program over six consecutive semesters. Schiavone found that the pass-rate declined thirteen percent over the six semesters from 68 to 55 percent. Although one could take issue with the standard set for passing the course (which was the attainment of the 12th grade reading level as measured by a raw score of 50 on the Stanford Test of Academic Skills (TASK)), the main problem is that the evaluation implied that the students, not the program, have failed. Schiavone recommended the expansion of the course into a "sequence of levels" (p. 34); in

short, a lengthening of the current program. By focusing on the students and their declining performance, Schiavone ignored any implications of program failure. Deciding why the pass-rate declined 13 percent in six semesters would have been the first step in a program-centered evaluation.

Finally, one must aim for the improvement of the program not the maintenance of the status quo in conducting CRR program evaluations. Two questions should be answered: what aspects of the program are not working as well as they could be? Then, what changes can be made so that the program can effectively meet more of its objectives? While this point may seem obvious, this has oftentimes not been the case in existing evaluations. As example of this problem surfaces in a study by Losak (1971), in which a random sample of freshmen students at the Miami-Dade Junior College who scored low on a placement test were enrolled in a regular freshman English course rather than the remedial program. The experimental group received instruction in remedial reading-writing, while the control group received instruction in the regular freshman English course. Losak found that the current remedial program was no more effective for the remedial students than the English course was for the students in the control group. More importantly, he concluded that there was a need to identify those who could and could not benefit from a standard remedial program; those who could not benefit (i.e., those who failed) should be enrolled in more "relevant programs (that were) developed for them" (p. 13). In other words, he suggested that the students be tailored to

the program. If the program does not succeed, one must find the students who will make it succeed rather than change the program.

What is needed now is the framework of a complete evaluation model to aid CRR program directors. Because none have been suggested, one must rely on the few models proposed for basic skills programs.

Bynum (1972), for example, in a comprehensive study of 711 college compensatory programs, presented a sample evaluation from one anonymous state university in New York. This evaluation reported student performance data as well as "the relative impact of specific practices and the contribution of specific courses" (p. 81). However, the evaluation procedure is not presented in enough detail to warrant its use as a model. Grant and Hoeber (1978) suggested two models for the evaluation of basic skills programs. One, designed by the Fund for the Improvement of Postsecondary Education, "proposed a three part evaluation method" (p. 36). While this model may prove useful when it is disseminated, it is currently unavailable from a publisher or from the ERIC system, and not readily available from FIPSE. The second model alluded to by Grant and Hoeber was proposed by Suchman (1967) to be used in evaluating public service and social action programs (Tables 1 & 2). In following the model, one would first establist long-range, intermediate, and immediate objectives, as well as the assumptions implicit in the objectives. Then one would evaluate the program in terms of the objectives by using a five

category evaluation procedure. What is interesting about Suchman's model is that it employs both evaluative and research designs within its five categories. Furthermore, the categories (Effort, Performance, Adequacy of Performance, Efficiency, and Process) are arranged hierarchically from the least to the most difficult to accomplish. Such a framework may prove useful for the evaluation of CRR programs.

Until more meaningful systematic evaluations of CRR programs can be carried out, the success of such programs and their various methodologies--in short, the need for such programs--will be seriously questioned. Further explorations to find appropriate comprehensive and systematic evaluation models for CRR programs must be conducted, perhaps experimenting with Suchman's model, and the results published or stored in the ERIC system. Without such information, the worth, as well as the future, of such programs is in doubt.

TABLE 1

Suchman's Model of Program Evaluation*

	A Effort	B Performance	C Adequacy of Performance	D Efficiency	E Process
Type of Criterion	Evaluative	Evaluative	Administrative	Administrative	Research
Related Question	How much effort was expended?	How much was accomplished?	How sufficient were these accomplishments?	Could the same accomplishments have been produced more efficiently?	What are the successful and unsuccessful components of the program?
Evaluative Goals	amount of activity	accomplishments in terms of objectives	accomplishments in terms of total need	need for alternate methods in terms of cost, time, personnel	identification of successful and unsuccessful aspects
Evaluative Problems	No judgment of effort	poorly-stated or missing objectives	unrealistic expectations; subjective judgment	subjective basis for judgment	unreliable and invalid measures
Possible application for individualized reading program in laboratory setting	Hours of operation; # faculty, students, classes; # units of faculty material produced; # work assignments finished daily, weekly, hourly.	# students meeting objectives; # competencies met; # students passing, etc.	Attendance ratios; drop ratios; proportion of population in program vs. total diagnosed population.	Are students who need the program being identified during diagnosis? Would a different approach produce the same results?	SEE REVERSE SIDE

*Adapted from Evaluative Research: Principles and Practice in Public Service and Social Action Programs, by Edward A. Suchman. New York: Russell Sage Fdn., 1967.

TABLE 2

Subcategories of the Process Category:
One of Suchman's Five Categories of Evaluation*

Subcategories of Process	Possible Application for Individualized Reading Program in Laboratory Setting
A. Attributes of the program that make it successful or unsuccessful	Individualization? Competency-based? Whole-class approach? Interpersonal contact? Relevant Material?
B. Recipients of the program who are affected; successful and unsuccessful recipients	Students classified by their progress toward objectives (SES, age, race, no. of semesters in attendance, etc.)
C. Conditions under which the program is successful	varying class sizes? mechanical vs. nonmechanical devices? lab vs. class?
D. Effects produced by the program (single/multiple; intentional/unintentional; duration):	
1. Cognitive Effects	measured by GPA, reading scores, etc.
2. Attitudinal Effects	measured by self-concept and attitude instruments, etc.
3. Behavioral Effects	measured by attrition, persistence, etc.

*Adapted from Evaluative Research: Principles and Practice in Public Service and Social Action Programs by Edward A. Suchman. New York: Russell Sage Foundation, 1967.

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A Topical Bibliography of Study Skills References

Joseph A. Fisher
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As the need for more effective study skills becomes more widely recognized by teachers, counselors and students who seek information independently, more frequent requests are made of learning center personnel for appropriate references which can provide the needed guidance and information.

Professional references are generally ill-suited to this type of inquirer because of the complexity and length of the discussions they offer and the general unavailability of such sources; however, numerous student references are available, which have been especially prepared with the inquiring student in mind and which can be used quite effectively by interested teachers and counselors as well. Because these references are available, practical and appealing to students, they are valuable resources for everyone in a position to guide study skills development of suggest appropriate sources for self-improvement. The present bibliography is based on sixty such student-oriented sources. It begins with an index by which the prospective user is guided to the proper page of the tenth yearbook identifying the particular references and pages treating the subject in question. Each reference is referred to by a three-

letter code to save space and facilitate updating the list. A code reference appears immediately after the bibliography listing the codes used in alphabetical order. An author index has been added to enable teachers or students to locate topics in a text they may chance to have by determining the code under which the text has been included in the bibliography. This bibliography is offered in the hope that by facilitating the location of specific information on different study skills topics, it will contribute to the improvement of more effective study skills and further the personal development of students.

Topical Bibliography for Study Skills Teachers

Joseph A. Fisher
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